Service Manual

iR1200 Series
iR1570F

Canon

Jun 17 2004

Application

This manual has been issued by Canon Inc. for qualified persons to learn technical theory, installation, maintenance, and repair of products. This manual covers all localities where the products are sold. For this reason, there may be information in this manual that does not apply to your locality.

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This manual may contain technical inaccuracies or typographical errors due to improvements or changes in products. When changes occur in applicable products or in the contents of this manual, Canon will release technical information as the need arises. In the event of major changes in the contents of this manual over a long or short period, Canon will issue a new edition of this manual.

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Caution

Use of this manual should be strictly supervised to avoid disclosure of confidential information.

Symbols Used

This documentation uses the following symbols to indicate special information:

Symbol	Description
	Indicates an item of a non-specific nature, possibly classified as Note, Caution, or Warning.
	Indicates an item requiring care to avoid electric shocks.
	Indicates an item requiring care to avoid combustion (fire).
	Indicates an item prohibiting disassembly to avoid electric shocks or problems.
	Indicates an item requiring disconnection of the power plug from the electric outlet.
Memo	Indicates an item intended to provide notes assisting the understanding of the topic in question.
REF.	Indicates an item of reference assisting the understanding of the topic in question.
	Provides a description of a service mode.
	Provides a description of the nature of an error indication.

The following rules apply throughout this Service Manual:

1. Each chapter contains sections explaining the purpose of specific functions and the relationship between electrical and mechanical systems with reference to the timing of operation.

   In the diagrams, ▮▮▮▮ represents the path of mechanical drive; where a signal name accompanies the symbol , the arrow ⟶ indicates the direction of the electric signal.

   The expression "turn on the power" means flipping on the power switch, closing the front door, and closing the delivery unit door, which results in supplying the machine with power.

2. In the digital circuits, '1'is used to indicate that the voltage level of a given signal is "High", while '0' is used to indicate "Low".(The voltage value, however, differs from circuit to circuit.) In addition, the asterisk (*) as in "DRMD*" indicates that the DRMD signal goes on when '0'.

   In practically all cases, the internal mechanisms of a microprocessor cannot be checked in the field. Therefore, the operations of the microprocessors used in the machines are not discussed: they are explained in terms of from sensors to the input of the DC controller PCB and from the output of the DC controller PCB to the loads.

The descriptions in this Service Manual are subject to change without notice for product improvement or other purposes, and major changes will be communicated in the form of Service Information bulletins.

All service persons are expected to have a good understanding of the contents of this Service Manual and all relevant Service Information bulletins and be able to identify and isolate faults in the machine."

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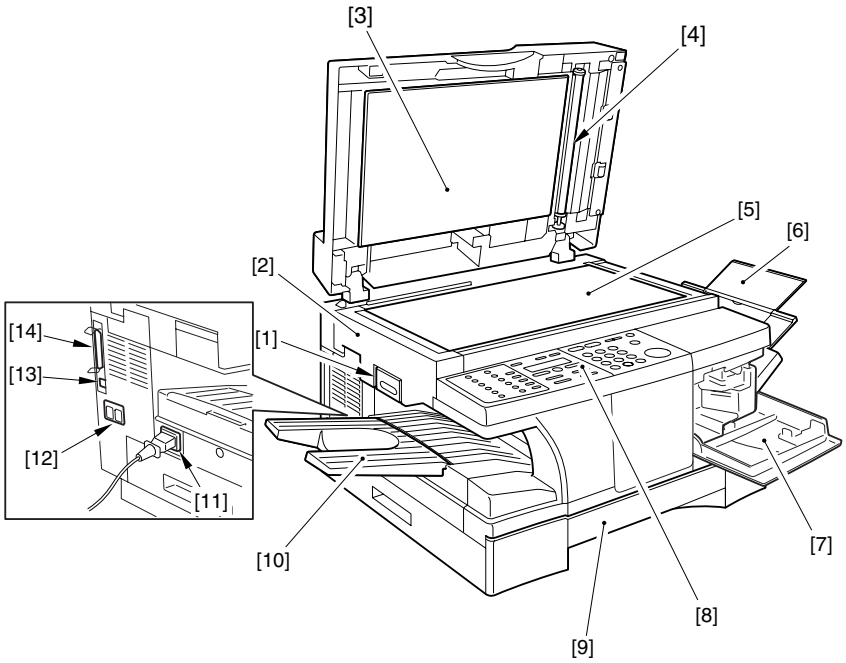
1.1 Product Specifications

1.1.1 Names of Parts

1.1.1.1 External View (ADF type)

0006-2706



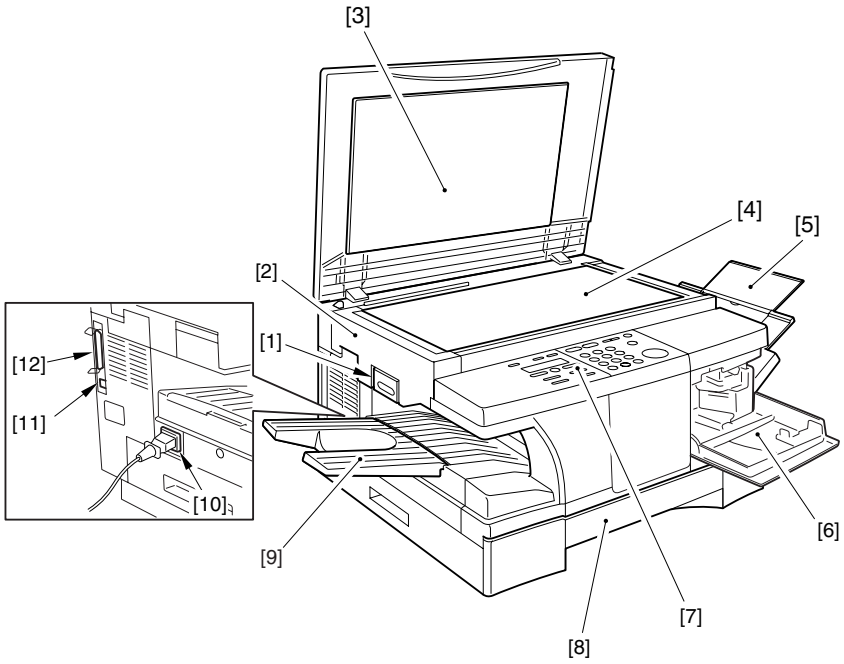
F-1-1

T-1-1

[1] Reader unit slide lever	[8] Control panel
[2] Reader unit	[9] Cassette
[3] White sheet	[10] Delivery tray
[4] White roller	[11] Power cord connector assembly
[5] Copyboard glass	[12] Modular cable connector assembly*1
[6] Manual feed tray	[13] USB cable connector assembly
[7] Toner supply cover	[14] Parallel interface cable connector assembly

*1: If equipped with fax functions.

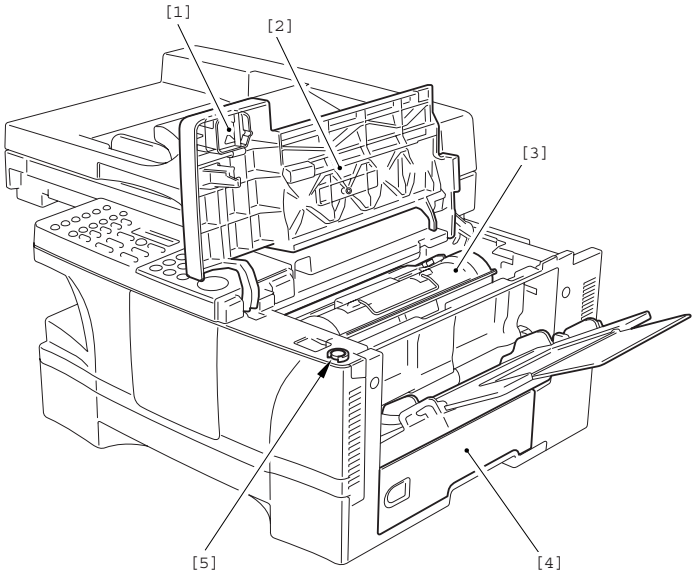
1.1.1.2 External View (copyboard type) 0006-2715



F-1-2

T-1-2

[1] Reader unit slide lever	[7] Control panel
[2] Reader unit	[8] Cassette
[3] Copyboard cover	[9] Delivery tray
[4] Copyboard glass	[10] Power cord connector assembly
[5] Manual feed tray	[11] USB cable connector assembly
[6] Toner supply cover	[12] Parallel interface cable connector assembly



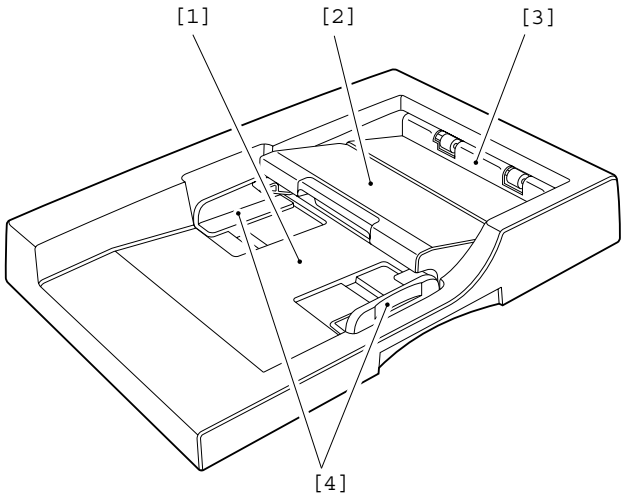
F-1-3

T-1-3

[1] Drum shutter stopper	[4] Right door
[2] Cartridge cover	[5] Shipping screw slot
[3] Cartridge	

1.1.1.3 External View (ADF)

0006-2722



F-1-4

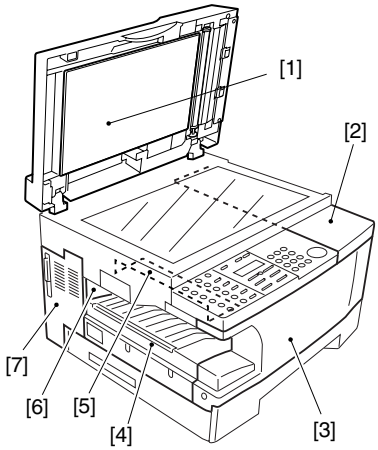
T-1-4

[1] Original placement area	[3] Delivery slot
[2] Open/close cover	[4] Slide guide

1.1.1.4 External Covers

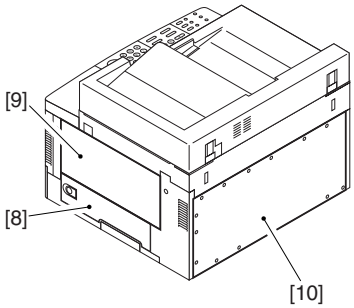
0007-3730

[1] ADF (copyboard cover)
[2] Cartridge cover
[3] Toner supply cover
[4] Front cover
[5] Delivery cover
[6] Delivery upper cover
[7] Delivery rear cover
[8] Left cover



F-1-5

[8] Right door
[9] Manual feed tray
[10] Rear cover



F-1-6

1.1.1.5 Cross Section (Body)

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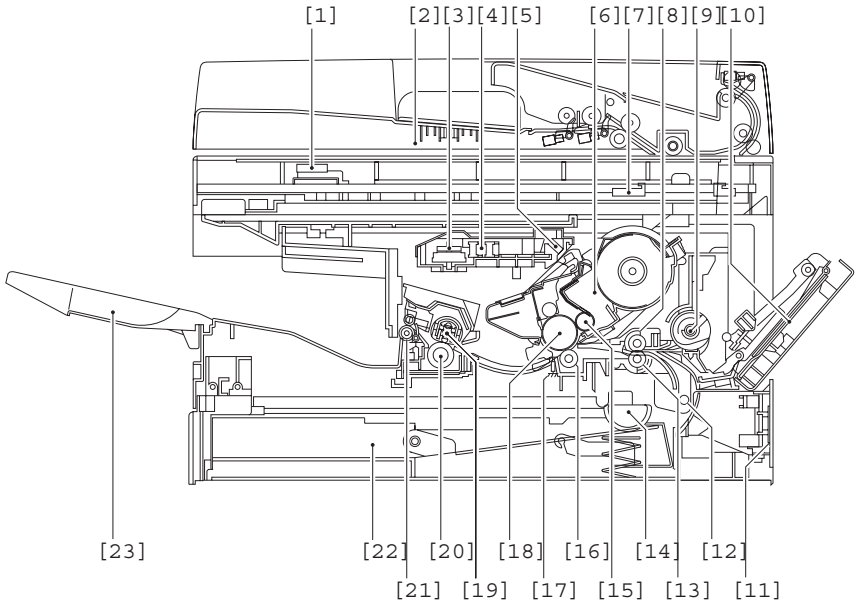


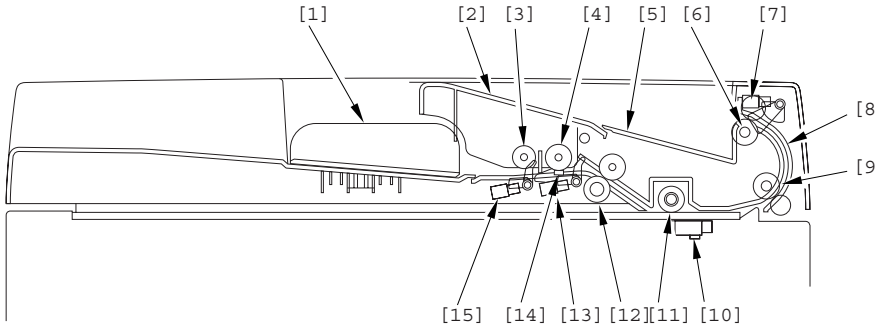
F-1-7

T-1-5

[1] Contact sensor	[13] Registration roller
[2] Copyboard	[14] Cassette pickup roller
[3] Laser scanner motor unit	[15] Developing cylinder
[4] Laser unit	[16] Transfer charging roller
[5] Reflecting mirror	[17] Separation static eliminator
[6] Cartridge	[18] Photopositive drum
[7] Reader unit	[19] Fixing film unit
[8] Registration shutter	[20] Fixing pressure roller
[9] Manual feed pickup roller	[21] Delivery roller
[10] Manual feed tray	[22] Cassette
[11] Right door	[23] Delivery tray
[12] Vertical path roller	

1.1.1.6 Cross Section (ADF)

0006-2770



F-1-8

T-1-6

[1] Slide guide	[9] Original feed roller
[2] Open/close cover	[10] Contact sensor (body)
[3] Original pickup roller	[11] White roller
[4] Original feed/separation roller	[12] ADF registration roller
[5] Original delivery tray	[13] Registration sensor
[6] Original delivery roller	[14] Original separation pad
[7] Original delivery sensor	[15] Original sensor
[8] Delivery external guide	

1.1.2 Using the Machine

1.1.2.1 Control Panel

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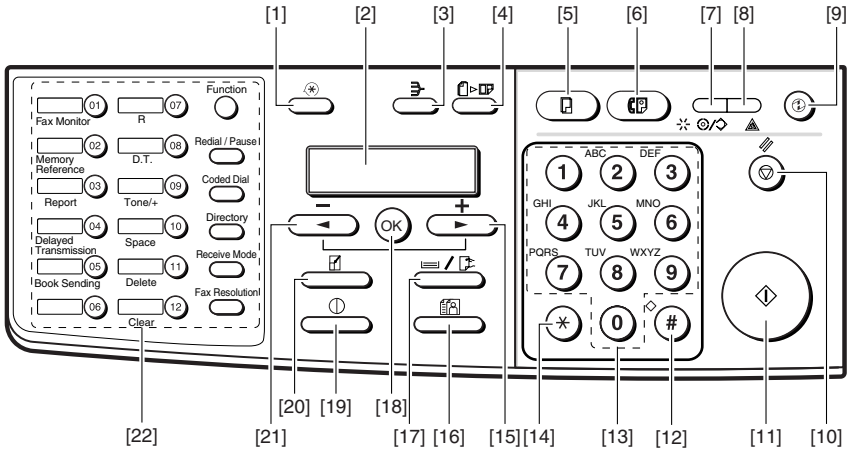


F-1-9

T-1-7

[1] Additional Functions Key

Press it to bring up the user mode menu for making various settings and registering items. The key flashes when the machine is in user mode menu, and goes OFF in response to a press.

[2] LCD

Use it to refer to the Copy/Fax basic screen, various Settings screens, and error messages.

[3] Collate Key

Press it to select sorting. The key remains ON when the machine is in sort mode, and goes OFF in response to a press.

[4] 2 on 1 Key

Press it to reduce 2 originals automatically and on a single sheet.

[5] Copy Key*1

Press it when using a copier function. The key remains ON when the machine is in copier mode.

[6] Fax Key*1

Press it when using a fax function. The key remains ON when the machine is in fax mode.

*1: If equipped with fax functions.

[7] In Use/Memory Lamp*1

It goes ON when an original has been read, a delayed fax transmission has been selected, or memory reception has been used. Further, it flashes while fax transmission is under way.

[8] Alarm Lamp

It flashes when a fault has occurred in the machine (e.g., paper jam).

[9] Energy Saver Key

Press it to manually select or deselect energy save mode. It remains ON when the machine is in energy save mode, and goes OFF when the machine leaves the mode.

[10] Stop/Reset Key

Press it to stop making copies or transmitting a fax. Or, press it to reset the machine white making mode settings (i.e., to return copier/fax mode to standard mode).

[11] Start Key

Press it to start making a copy or sending a fax.

[12] # Key

Press it to enter a "symbol"when registering fax/telephone number or when entering a fax telephone number.

[13] Keypad

Use it to enter a copy count or a value for Zoom, or when entering a fax telephone number.

[14] * Key

Press it to generate a tone signal from a dial (pulse) circuit when using a fax function.

[15] Right Arrow/+ Key

Press it to add a value when making various settings or to indicate the next setting or an item.

[16] Image Quality Key

Press it to select a copy image quality type (text, text/photo, photo).

[17] Paper Select Key

Press it to select a source of paper (drawer (cassette), stack bypass (manual feed)).

[18] OK Key (Set Key*2)

Press it to store various selections or settings.

[19] Exposure Key

Press it to change the copy density. (auto, or manual from 9 steps)

[20] Enlarge/Reduce Key

Press it to select a default Enlarge/Reduce ratio or Zoom.

[21] Left Arrow/- Key

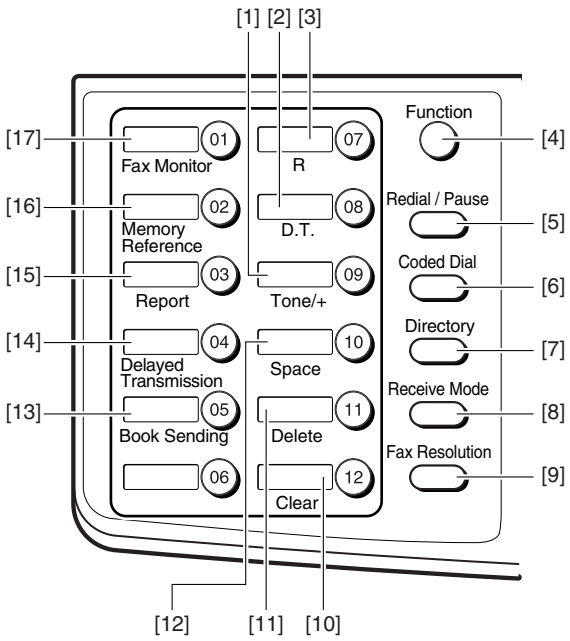
Press it to subtract a value when making various settings or to indicate the previous setting or an item.

[22] One-Touch/Fax Function Key (after a press on the Function key)*1

Press it to dial a pre-registered telephone number. A press on the Function key will cause it to serve as the Fax Function key.

*1: If equipped with fax functions.

*2: Only for the iR1310/1330/1370F models.



F-1-10

T-1-8

[1] Tone/+ Key*1

Press it to generate a tone from a dial circuit. Press it to enter a + symbol when registering a telephone number.

[2] D.T. Key*1

Press it to use a D.T. function.

[3] R Key*1

Press it to use an R function.

[4] Function Key*2

Press it to use the function key. A press on the Function key will cause the key to go ON, and another press will cause it to go OFF.

[5] Redial/Pause Key*2

Press it to redial a number that has been dialed using the keypad (as in fax wait). When entering a telephone number, it services as a Pause key.

*1: Function key is ON.

*2: If equipped with fax functions.

[6] Coded Dial Key*1

Press it to use speed dialing.

[7] Directly Key*1

Use it to search for a one-touch or speed number using a name.

[8] Receive Mode Key*1

Press it to change the reception mode (faxtel, faxonly, DPRD*3, manual, ansmode).

[9] FAX Resolution Key*1

Use it to change the transmission resolution (standard, fine, photo, super fine, ultra fine).

[10] Clear Key*2

Press it to clear various settings that have been registered or made. Also, press it to delete all telephone number/text input.

[11] Delete Key*2

Use it to delete a single character input.

[12] Space Key*2

Press it to put a space in a telephone number or a string of characters.

[13] Book Send Key*2

Press it to transmit multiple originals using the copyboard glass.

[14] Delayed Transmission Key*2

Press it to set a transmission time.

[15] Report Key*2

Press it to print out a communication-related report, dial list, user data list, or document memory list.

[16] Memory Reference Key*2

Press it to check the file that has been processed by memory transmission or memory reception.

[17] Fax Monitor Key*2

Press it to check the state of a fax communication.

*1: If equipped with fax functions.

*2: Function key is ON.

*3: Only for the iR1370F model.

1.1.3 User Mode Items

1.1.3.1 Outline 0006-2653

A press on the Additional Functions key in the control panel brings up the user mode menu. On the user mode menu, press the left/right arrow key to make menu settings or increase/decrease a value; press the OK key to store the selected input.
The user mode menu is constructed as follows:
(The factory default setting is in bold face.)

1.1.3.2 COMMON SETTINGS 0007-1172

1. DEFAULT SETTINGS*1

T-1-9

COPY

FAX

2. SW AFTER AUTO CLR*1

T-1-10

DEFAULT MODE

CURRENT MODE

3. VOLUME CONTROL*1

T-1-11

1.KEYPAD
VOLUME

ON

VOLUME1 to 3 (**1**)

OFF

2.ALARM
VOLUME*1

ON

VOLUME1 to 3 (**1**)

OFF

3.TX DONE TONE

ON

VOLUME1 to 3 (**1**)

ERROR ONLY

VOLUME1 to 3 (**1**)

OFF

4.RX DONE TONE

ON

VOLUME1 to 3 (**1**)

ERROR ONLY

VOLUME1 to 3 (**1**)

OFF

*1: Only if equipped with fax functions.

T-1-12

5.PRINTING END TONE

ON

VOLUME1 to 3 (1)

ERROR ONLY

VOLUME1 to 3 (1)

OFF

6.SCANNING END TONE

ON

VOLUME1 to 3 (1)

ERROR ONLY

VOLUME1 to 3 (1)

OFF

7.CALLING VOLUME

1 to 3 (**2)**

8.LINE MONITOR VOL.

ON

VOLUME1 to 3 (**2)**

OFF

4. STACK BYPASS SIZE

T-1-13

OFF

BYPASS PAPER SIZE

FREE SIZE

SET ON LOADING

ON

BYPASS PAPER SIZE

A4*2

B5

A5

LGL

LTR*3

STMT

CUSTOM PAER SIZE

1.VERTICAL SIZE 76 to 216mm (**216)**

2.HORIZONTAL SIZE 127 to 356mm (**356)**

*1: Only if equipped with fax functions.
*2: Factory default for A/AB area.
*3: Factory default for Inch area.
5. DRAWER PAPER SIZE

T-1-14

A4*1

LTR/LGL*2

FOLIO

FOOLSCAP

6. PRINT EXPOSURE

T-1-15

5 settings (**Center**)

7. MP PAPERTYPE

T-1-16

PLAIN PAPER

TRACING PAPER

TRANSPARENCY

SPECIAL PAPER 1

SPECIAL PAPER 2

8. COPY POWER LEVEL

T-1-17

HIGH

NORMAL

LOW

9. TONER SAVER MODE

T-1-18

ON

OFF

10. PRT FEED INTERVAL

T-1-19

LONG INTERVAL

NORMAL INTERVAL

11. DISPLAY LANGUAGE*3

T-1-20

ENGLISH

FRENCH

SPANISH

GERMAN

ITALIAN

DUTCH

FINNISH

PORTUGUESE

NORWEGIAN

SWEDISH

DANISH

SLOVENE

CZECH

HUNGARIAN

RUSSIAN

*1: Factory default for A/AB area.

*2: Factory default for Inch area.

*3: This setting may be unavailable depending on the value set for service mode #5 TYPE.

1.1.3.3 COPY SETTINGS

0006-2683

1. STD. IMAGEQUALITY

T-1-21

TEXT ORIGINAL

TEXT/PHOTO

PHOTO

2. STANDARD EXPOSURE

T-1-22

AUTO

MANUAL

9 settings (**Center**)

3. STD ZOOM RATIO

T-1-23

50 to 200% (**100%**)

4. STANDARD COPY QTY

T-1-24

01 to 99 (**01**)

5. AUTO SORT

T-1-25

ON

OFF

6.MAX. SCAN LENGTH

T-1-26

330mm*1

356mm*2

7. PAPER SIZE GROUP

T-1-27

INCH*2

A*3

AB*4

8. SHARPNESS

T-1-28

1 to 9 (**5**)

*1: Factory default for A/AB area.
*2: Factory default for Inch area.
*3: Factory default for A area.
*4: Factory default for AB area.

1.1.3.4 FAX SETTINGS*1 0006-2692

T-1-29

1.USER SETTINGS

1.TEL LINE SETTINGS

1.USER TEL NO.

2.TEL LINE TYPE

TOUCH TONE

ROTARY PULSE

3.TX START SPEED

33600
bps

14400bps

9600bps

7200bps

4800bps

2400bps

4.RX START SPEED

33600 bps

14400bps

9600bps

7200bps

4800bps

2400bps

2.UNIT NAME

*1: Only if equipped with fax functions.

3.TX TERMINAL ID

1.TTI POSITION

OUTSIDE IMAGE

INSIDE IMAGE

2.TEL NUMBER MARK

FAX

TEL

4.DENSITY CONTROL

LIGHT

STANDARD

DARK

5.PROG. 1-TOUCH KEY

01 to 12

USE

1.REPORT

2.DELAYED TX

3.FAX MONITOR

4.MEMORY REFERENCE

5.BOOK SENDING

DO NOT USE

6.OFFHOOK ALARM

ON

OFF

7.R-KEY SETTING*2

PSTN

PBX

HOOKING

EARTH CONNECTION

PREFIX

*1:Only if equipped with fax functions.

*2:Only if equipped with fax functions and a 230V model.

2.REPORT SETTINGS

1.TX REPORT

OUTPUT NO

PRINT ERROR ONLY

REPORT WITH TX IMAGE

ON

OFF

OUTPUT YES

REPORT WITH TX IMAGE

ON

OFF

2.RX REPORT

OUTP
UT
NO

PRINT ERROR
ONLY

OUTPUT YES

3.ACTIVITY REPORT

ON

OFF

3.TX SETTINGS

1.ECM TX

ON

OFF

2.PAUSE TIME

01 to 15SEC (**02)**

3.AUTO REDIAL

ON

1.REDIAL TIMES

01 to 10TIMES
(**02)**

2.REDIAL INTERBAL

02 to 99MIN. (**02)**

3.TX ERROR RESEND

ON

RESEND TX FROM

ERROR & 1ST PG

ERROR PAGE

ALL PAGES

OFF

OFF

*1:Only if equipped with fax functions

4.ERASE FAILED TX

OFF

ON

5.TIME OUT

ON

OFF

4.RX SETTINGS

1.ECM RX

ON

OFF

2.FAX/TEL OPT. SET

1.RING START TIME

00 to 30SEC (**08)**

2.F/T RING TIME

15 to 300SEC (**15)**

3.F/T SWITCH ACTION

RECEIVE

DISCONNECT

3.DRPD: SELECT FAX*2

NORMAL RING

DOUBLE RING

SHORT-
SHORT-LONG

SHORT-LONG-
SHORT

OTHER RING
TYPE

4.INCOMING RING

OFF

ON

RING COUNT

01 to 99TIMES
(**02)**

5.MAN/AUTO SWITCH

OFF

ON

F/T RING TIME

01 to 99SEC (**15)**

6.REMOTE RX

ON

REMOTE RX ID

00 to 99 (**25)**

OFF

*1: Only if equipped with fax functions.

*2: Only for the iR1370F model.

5.PRINTER SETTINGS

1.RX REDUCTION

ON

1.RX REDUCTION

AUTO SELECTION

FIXED REDUCTION

97%

95%

90%

75%

2.SELECT REDUCE DIR

VERTICAL ONLY

HORIZ & VERTICAL

OFF

2.TONER SUPPLY LOW

KEEP PRINTING

RX TO MEMORY

6. SYSTEM SETTINGS

1.FAX DEFAULT

1.RESOLUTION

OFF

STANDARD

FINE

PHOTO

SUPER FINE

ULTRA FINE

2.BOOK TX SCAN SIZE

A4*2

A5*2

LTR*2

LGL*2

SHEET

2.LOCK PHONE

ON

OFF

*1: Only if equipped with fax functions.

*2: This setting may be unavailable depending on the valve set for service mode #1
SSSW>SW-14>bit 0,1.

3.COUNTRY SELECT*2

UK

GERMANY

FRANCE

ITALY

SPAIN

HOLLAND

DENMARK

NORWAY

SWEDEN

FINLAND

AUSTRIA

BELGIUM

SWITZERLAND

PORTUGAL

IRELAND

GREECE

LUXEMBOURG

HUNGARY

CZECH

RUSSIA

SLOVENIA

SOUTH AFRICA

OTHERS

*1: Only if equipped with fax functions.

*2: This setting may be unavailable depending on the value set for service mode #5 TYPE.

1.1.3.5 FAX SETTINGS*1

0007-1181

T-1-30

1.USER SETTINGS

1.TEL LINE SETTINGS

1.USER TEL NO.

2.TEL LINE TYPE

TOUCH TONE

ROTARY PULSE

3.TX START SPEED

33600 bps

14400bps

9600bps

7200bps

4800bps

2400bps

4.RX START SPEED

33600 bps

14400bps

9600bps

7200bps

4800bps

2400bps

2.UNIT NAME

*1: Only if equipped with fax functions.

3.TX TERMINAL ID

1.TTI POSITION

OUTSIDE IMAGE

INSIDE IMAGE

2.TEL NUMBER MARK

FAX

TEL

4.DENSITY CONTROL

LIGHT

STANDARD

DARK

5.PROG. 1-TOUCH KEY

01 to 12

USE

1.REPORT

2.DELAYED TX

3.FAX MONITOR

4.MEMORY REFERENCE

5.BOOK SENDING

DO NOT USE

6.OFFHOOK ALARM

ON

OFF

7.R-KEY SETTING*2

PSTN

PBX

HOOKING

EARTH CONNECTION

PREFIX

*1:Only if equipped with fax functions.

*2:Only if equipped with fax functions and a 230V model.

2.REPORT SETTINGS

1.TX REPORT

OUTPUT NO

PRINT ERROR ONLY

REPORT WITH TX IMAGE

ON

OFF

OUTPUT YES

REPORT WITH TX IMAGE

ON

OFF

2.RX REPORT

OUTP UT NO

PRINT ERROR ONLY

OUTPUT YES

3.ACTIVITY REPORT

ON

OFF

3.TX SETTINGS

1.ECM TX

ON

OFF

2.PAUSE TIME

01 to 15SEC (**02)**

3.AUTO REDIAL

ON

1.REDIAL TIMES

01 to 10TIMES
(**02)**

2.REDIAL INTERBAL

02 to 99MIN. (**02)**

3.TX ERROR RESEND

ON

RESEND TX FROM

ERROR & 1ST PG

ERROR PAGE

ALL PAGES

OFF

OFF

*1:Only if equipped with fax functions

4.ERASE FAILED TX

OFF

ON

5.TIME OUT

ON

OFF

4.RX SETTINGS

1.ECM RX

ON

OFF

2.FAX/TEL OPT. SET

1.RING START TIME

00 to 30SEC (**08)**

2.F/T RING TIME

15 to 300SEC (**15)**

3.F/T SWITCH ACTION

RECEIVE

DISCONNECT

3.DRPD:
SELECT FAX*2

NORMAL RING

DOUBLE RING

SHORT-SHORT-LONG

SHORT-LONG-SHORT

OTHER RING TYPE

4.INCOMING RING

OFF

ON

RING COUNT

01 to 99TIMES
(**02)**

5.MAN/AUTO SWITCH

OFF

ON

F/T RING TIME

01 to 99SEC (**15)**

6.REMOTE RX

ON

REMOTE RX ID

00 to 99 (**25)**

OFF

*1: Only if equipped with fax functions.

*2: Only for the iR1370F model.

5.PRINTER SETTINGS

1.RX REDUCTION

ON

1.RX REDUCTION

AUTO SELECTION

FIXED REDUCTION

97%

95%

90%

75%

2.SELECT REDUCE DIR

VERTICAL ONLY

HORIZ & VERTICAL

OFF

2.PRINT IN ORDER

ON*2

OFF

3.TONER SUPPLY LOW

KEEP PRINTING

RX TO MEMORY

6. SYSTEM SETTINGS

1.FAX DEFAULT

1.RESOLUTIO
N

OFF

STANDARD

FINE

PHOTO

SUPER FINE

ULTRA FINE

2.BOOK TX SCAN SIZE

A4*3

A5*3

LTR*3

LGL*3

SHEET

2.LOCK PHONE

ON

OFF

*1: Only if equipped with fax functions.

*2: This setting may be unavailable depending on the valve set for service mode #1
SSSW>SW-14>bit 0,1.

3.COUNTRY SELECT*2

UK

GERMANY

FRANCE

ITALY

SPAIN

HOLLAND

DENMARK

NORWAY

SWEDEN

FINLAND

AUSTRIA

BELGIUM

SWITZERLAN
D

PORTUGAL

IRELAND

GREECE

LUXEMBOUR
G

HUNGARY

CZECH

RUSSIA

SLOVENIA

SOUTH
AFRICA

OTHERS

*1: Only if equipped with fax functions.

*2: Default setting (USA model only)

*3: This setting may be unavailable depending on the value set for service mode #5 TYPE.

1.1.3.6 ADD. REGISTRATION*1 0006-2705

T-1-31

- 1.1-TOUCH SPD DIAL
  - 01 to 12
    - 1. TEL NUMBER ENTRY
    - 2. NAME
    - 3. OPTIONAL SETTING
      - ON
        - 1. TX TIME SETTING
          - 1 to 5
        - 2. TX TYPE
          - REGULAR TX
          - SUBADDRESS TX
            - 1. PASSWORD
            - 2. SUBADDRESS
          - POLLING RX
            - 1. PASSWORD
            - 2. SUBADDRESS
      - OFF
- 2. CODED SPD DIAL
  - *00 to *99
    - 1. TEL NUMBER ENTRY
    - 2. NAME
    - 3. OPTIONAL SETTING
      - ON
        - 1. TX TIME SETTING
        - 2. TX TYPE
          - REGULAR TX
          - SUBADDRESS TX
            - 1. PASSWORD
            - 2. SUBADDRESS
          - POLLING RX
            - 1. PASSWORD

2. SUBADDRESS

OFF

3. GROUP DIAL

01 to 12

1. TEL NUMBER ENTRY

2. NAME

3. TX TIME SETTING

1 to 5

*1: Only if equipped with fax functions.

1.1.3.7 TIMER SETTINGS 0006-2714

T-1-32

1 DATE/TIME SETTING

2 AUTO CLEAR

ON

AUTO CLEAR TIME

1 to 9MIN. **(2)**

OFF

3 ENERGY SAVER

ON

ENERGY SVR TIME

03 to 30MIN. **(5)**

OFF

4 DAILY TIMER SET

1. SUN

2. MON

3. TUE

4. WED

5. THU

6. FRI

7. SAT

5 DATE SETUP

YYYY
MM/
DD

MM/
DD
YYYY

DD/
MM
YYYY

1.1.3.8 ADJUST./CLEAN 0006-2719

1. ROLLER CLEANING
2. CLEAN ADF ROLLER*1
3. RESTART PRINTER
4. MIX TONER

*1: Only if equipped with ADF functions.

1.1.3.9 PRINT LISTS 0006-2720

T-1-33

1 USER DATA

2 SPEED DIAL LIST*1

1. 1-TOUCH LIST
   1. NO SORT
   2. SORT
2. CODED DIAL LIST
   1. NO SORT
   2. SORT
3. 1-TOUCH(DETAIL)
   1. NO SORT
   2. SORT

4. CODED(DETAIL)

1. NO SORT

2. SORT

5. GROUP DIAL LIST

3 CANCEL REPORT

*1: Only if equipped with fax functions.

1.1.3.10 COUNT CHECK 0006-2738

101: TOTAL T1: XX*2
201: COPY T1: XX*3
000*3
000*3
000*3
000*3

*2: Cannot be changed.

*3: The specifics indicated by the Count Check menu may be selected in service mode (#3 NUMERIC PARAM; No. 57 through 61).

1.1.3.11 Report Generating 0006-2742

The user can generate any of the following report manually:

T-1-34

Name of report	Operation
User data list	Select a report in the user mode menu. Or, select fax mode. Press Function key and Report key in this order. Use the Left or Right Arrow key to select a list to print, then press OK key.
1-touch spd dial list*1	
1-touch dial spd dial list (detail)*1	
Coded speed dial list*1	
Coded speed dial list (detail)*1	
Group dial list*1	

Name of report	Operation
Docement memory list*1	Select fax mode. Press Function key and Report key in this order. Use the Left or Right Arrow key to select a list to print, then press OK key.
Activity report*1	

*1: Only if equipped with fax functions.

1.1.3.12 Reports Generating (Automatically Generating Reports: if equipped with fax functions) 0006-2750

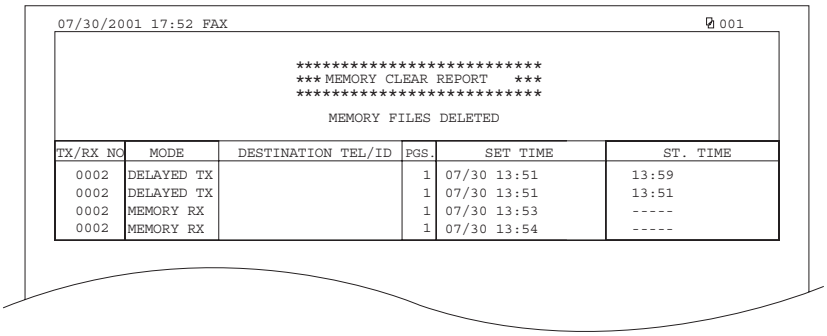
The user can make appropriate settings in user mode so that the following reports may be generated automatically.

T-1-35

Name of report	Settings
TX report	Make output settings for auto generation under '2.REPORT SETTINGS' in '3.FAX SETTINGS' of the user mode menu.
Error TX report	
RX report	
Activity report	
Multiple activity report	First, enable '2. TX REPORT' under '2.REPORT SETTINGS' of 3. FAX SETTINGS' on the user mode menu; a report will be generated if a broadcast transmission is used (instead of a TX report).

Name of report	Settings
Memory clear list	If the machine remains without power for a specific period of time (about 2 hr or more) while an image exists in its memory, the power of the vanadium lithium secondary battery (BAT2) will become exhausted. A report will automatically be generated when the machine is turned on.

Memory Clear List


07/30/2001 17:52 FAX
001
****
*** MEMORY CLEAR REPORT ***
****
MEMORY FILES DELETED
TX/RX NO | MODE | DESTINATION TEL/ID | PGS. | SET TIME | ST. TIME
0002 | DELAYED TX | | 1 | 07/30 13:51 | 13:59
0002 | DELAYED TX | | 1 | 07/30 13:51 | 13:51
0002 | MEMORY RX | | 1 | 07/30 13:53 | -----
0002 | MEMORY RX | | 1 | 07/30 13:54 | -----

F-1-11

T-1-36

TX/RX NO:	4-digit indication
MODE:	transmission, delayed transmission, or reception
DESTINATION TEL/ID:	one-touch dial/speed dial number, abbreviation of other party
PGS.:	number of pages stored
SET TIME :	date/time (in 24-hr notation)
ST. TIME:	start of storage (in 24-hr notation)

1.1.4 Maintenance by the User

1.1.4.1 Outline 0006-3080

The user is expected to perform the following so that the machine may be used in its best condition at all times.

1.1.4.2 Cleaning the Fixing Pressure Roller 0006-3081

If the faces or the backs of printed sheets show soiling in the form of black dots, clean the fixing pressure roller as

follows:

1) Place an A4 or larger sheet of plain paper in the manual feed tray.
2) Press the Additional Functions key, and hold down the Right Arrow key or the Left Arrow key until the LCD indicates '6. ADJUST/CLEAN'.
3) Press the OK key.
4) Check to make sure that the LCD indicates '1.ROLLER CLEANING', and press the OK key. In response, the machine will start cleaning the fixing pressure roller.

MEMO:
It takes about 3 min before the paper is delivered to the delivery tray after the cleaning of the fixing pressure roller is started.

1.1.4.3 Other Cleaning 0006-3084

If images tend to be soiled, advise the user to clean the following as needed.

T-1-37

No.	Part	Instructions
1	Copyboard glass	Wipe it with a cloth moistened with water (and wrung well); then, dry wipe it.
2	Copyboard glass retainer	Wipe it with a cloth moistened with water (and wrung well); then, dry wipe it.
3	Vertical size plate	Wipe it with a cloth moistened with water (and wrung well); then, dry wipe it.
4	White plate	Wipe it with a cloth moistened with water (and wrung well); then, dry wipe it.

1.1.4.4 Storing After Unpacking the Cartridge 0007-3726

The photosensitive drum is made of organic photo-conducting material (OPC), and will deteriorate if exposed to strong light. It is also used to hold toner inside it after setting the toner bottle. Be sure to advise the user to be fully careful when storing and handling the cartridge.
(The cartridge must always be put inside a protective bag for storage.)

a. Use a protective bag for storage.
b. Avoid areas subject to direct sunshine (e.g., near a window). Do not leave it alone inside a card, as the temperature can rise to an extremely high level. (These are also true even if the cartridge is put in a protective bag.)
c. Avoid areas subject to high temperature/humidity or low temperature/humidity, areas subject to rapid changes in temperature or humidity, or areas subject to condensation (e.g., near an air conditioner).
d. Avoid areas exposed to corrosive gas (e.g., insecticide) or salty air.
e. Avoid areas subject to dust, ammonium gas, or organic solvent gas.
f. Avoid areas near a CRT display, disk drive, and floppy disk. (The magnetism from the cartridge can destroy the

data.)

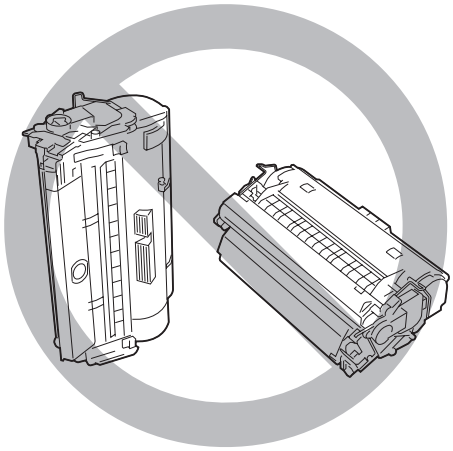
g. Keep it out of reach of children.

h. Keep the temperature between 0 deg and 35 deg C (32 deg and 95 deg F).

1.1.4.5 Points to Note When Handling the Cartridge 0007-3727

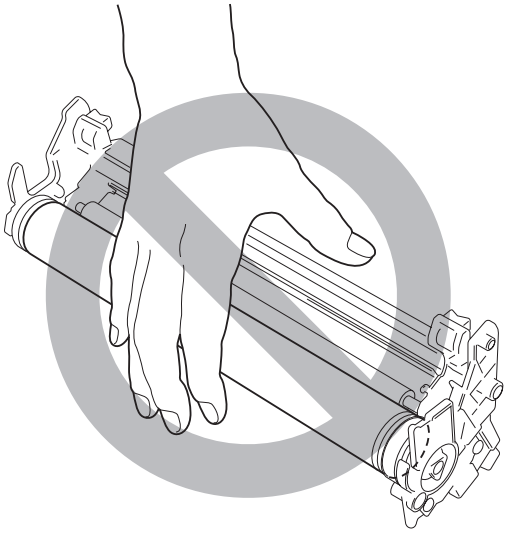
a. Do not shake the cartridge after setting the toner bottle.

b. Do not place the cartridge on its end or upside down as shown in the following firure. Also, do not swing it.



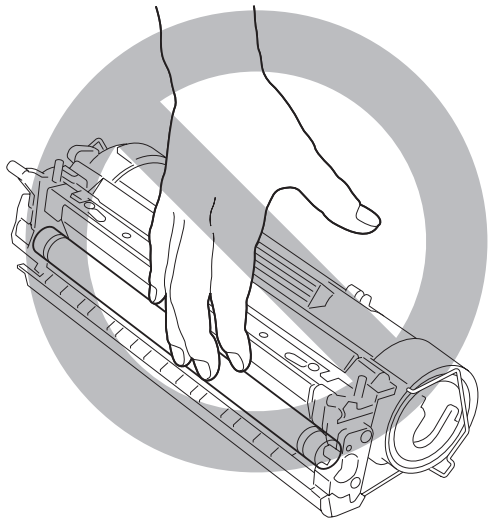
F-1-12

c. Do not touch the surface of the drum unit.



F-1-13

d. Do not touch the developing cylinder.



F-1-14

e. Do not disassemble the cartridge.

f. Do not subject the cartridge to unnecessary vibration or impact. In particular, do not force down on the photosensitive drum through the shutter found under the cartridge.

g. Do not keep the cartridge inside the machine when moving the machine. Be sure to put the cartridge in its protective bag, or wrap it in thick cloth to avoid light.

h. Do not place the cartridge near a CRT display, disk drive, or floppy disk, as the magnetism from the cartridge can destroy the data.

i. Keep the cartridge out of reach of children.

j. The photosensitive drum is susceptible to light, thus the presence of a shutter under the cartridge. If exposed to strong light for a long time, the copies may start to develop white spots or vertical bands. These faults may disappear if the machine is left at rest for some time, or the memory (cause of the faults) may remain permanently.

⚠

If you must take out the cartridge from the machine, be sure to put it in its protective bag, or cover it. Never leave it alone unprotected.

MEMO:

If the photosensitive drum is exposed to 1500 lux (general light) for 5 min and then left alone for 5 min in a dark place, it may recover to a level that will not cause practical problems. Nevertheless, avoid direct sunshine by all means, which is as strong as 10000 to 30000 lux.

---

k. Advise the user to send all used drum unit to the designated place.

⚠

Do not throw a drum unit (used or not used) into fire. It may burst or explode.

Whenever possible, keep the drum unit intact with the developing unit. If you must separate the drum unit and the developing unit as when checking image faults, be sure to keep it in a protective bag to prevent damage to the drum surface.

l. Be sure to use the drum shutter stopper as replacing the drum unit.

m. Use the packaging box of the new drum unit if available.

1.1.4.6 Cleaning the White Roller (ADF) 0006-3094

If the backs of originals tend to become soiled, clean the white roller as follows:

1) Open the ADF, and clean the bottom of the white roller with a cloth moistened with water (and wrung well). If the dirt is excessive, use alcohol with lint-free paper. Be sure to dry wipe it with a cloth or lint-free paper thereafter.
2) Press the Additional Functions key, and hold down the Right Arrow or Left Arrow key until the LCD indicates '6.ADJUST/CLEAN'.
3) Press the OK key.
4) Hold down the Right Arrow key or the Left Arrow key until the LCD indicates '2.CLEAN ADF ROLLER'.
5) Press the OK key.
6) When the LCD indicates 'START CLEAN : [SET]', press the OK key. In response, the white roller makes a 120 deg turn.
7) Wipe the bottom of the white roller with a cloth moistened with water (and wrung well); then, dry wipe it.
8) Repeat steps 6) and 7) to clean the entire surface of the white roller.
9) Press the Stop key to end.

1.1.4.7 Other Cleaning 0006-3095

If images tend to become soiled, advise the user to clean the following as needed.

T-1-38

No.	Part	Instructions
1	White plate	Wipe it with a cloth moistened with water (and wrung well); then, dry wipe it.

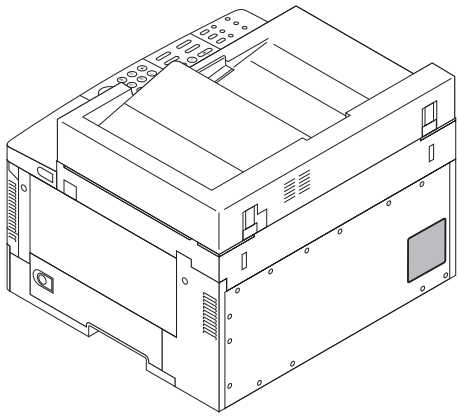
1.1.5 Safety

1.1.5.1 Safety of the Laser Scanner Unit 0006-2781

The radiation from a laser until can be harmful to the human body. The machine's laser scanner unit is sealed by means of a protective housing and external covers, so that the light
it produces will not escape outside, ensuring the safety of the user as long as the machine is used under normal conditions.

1.1.5.2 CDRH Requirements 0006-2833

The Center for Devices and Radiological Health (CDRH) of the US Department of Health and Human Services put into force a set of requirements with a view to regulating laser-related products on August 2, 1976. The requirements apply to laser products produced on August 1, 1996, or later, and all laser products must comply with them if they are to be marketed in the US. The following is the label that indicates the compliance with the CDRH requirements, and it must be attached to all laser products that are sold in the US.



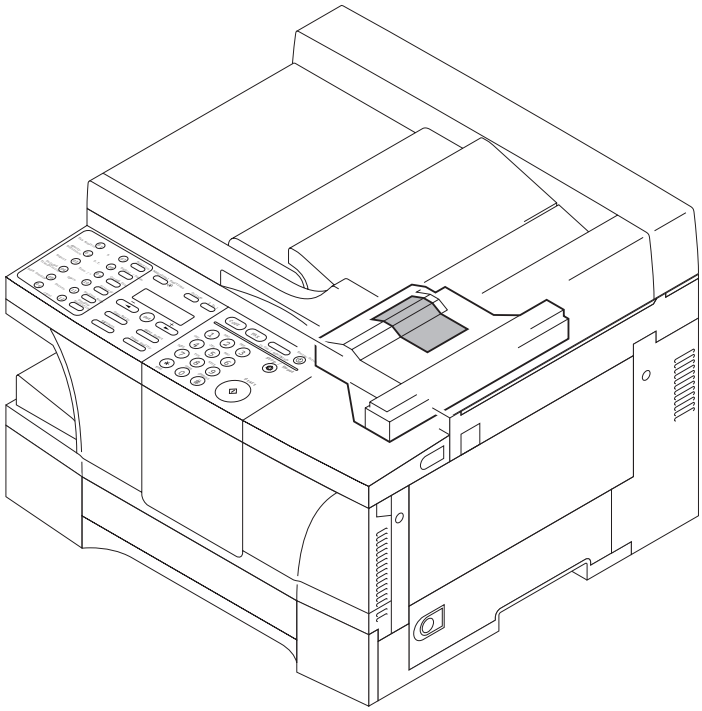
F-1-15

⚠

The text may differ from product to product or from model to model.

1.1.5.3 Handling the Laser Scanner Unit 0006-2834

When servicing the area around the machine's laser scanner unit, take full care not to put any tool with a high reflectance (e.g., screwdriver) into the laser path. Be sure also to remove any watch, ring, or the like, as they can reflect the laser beam to damage your eye. The machine's laser light is red, and its covers that can reflect the laser beam are identified using the following label. The laser scanner unit of this model cannot be adjusted in the field.



F-1-16

⚠

The label is attached to covers inside the machine used to block out laser radiation.

1.1.5.4 Safety of the Toner

0006-2836

The machine's toner is a non-toxic material consisting of plastic, iron, and small amounts of dye. If toner came into contact with your skin or clothes, remove as much of it as possible with dry tissue, and wash with water. Do not use hot water, as it will turn the toner into a jelly and cause it to permanently fuse with the fibers of the clothes. Also, do not bring toner into contact with vinyl material, as they are likely to react against each other.

⚠

Do not throw toner into fire. It may explode.

1.1.6 Product Specifications

1.1.6.1 Mechanisms/Functions

0007-0834

Body	Desk top (ADF standard type, copyboard standard type)
Copyboard	Fixed
Light source type	LED
Lens type	CIS (contact sensor)
Photosensitive medium	OPC drum (30-mm dia.): Drum unit
Reproduction method	Indirect electrostatic
Charging method	Roller contact
Exposure method	Semiconductor laser
Copy density adjustment function	Auto (AE) or manual
Development method	Dry, 1-component toner projection
Pickup method	Cassette: 1 cassette Multifeeder: 1 feeder
Transfer method	Roller transfer
Drum cleaning method	Rubber blade
Separation method	Static (static eliminator) + curvature
Fixing method	SURF (on-demand)
Reading resolution	600 x 600 dpi
Copying resolution	1200 equivalent x 600 dpi
Printing resolution	2400 equivalent x 600 dpi
Original type	Sheet, book, 3-D object (2 kg max.)
Maximum original size	A4 (297 × 210 mm/11.7" × 8.3") LGL (356 × 216 mm/ 14.0" × 8.5")
Reproduction Ratio 4R3E (AB configuraiton)	4R3E
Reproduction Ratio 2R2E (A configuration)	2R2E

Reproduction Ratio 3R2E (Inch configuration)	3R2E
Reproduction ratio	50% to 200% (1% increments)
Warm-up time	8.5 sec (after plug in)/1.0 sec (after pressing Energy Saver key)
First print time	13 sec or less 21.5 sec (after plug in) 18 sec (after pressing Energy Saver key)
Continuous reproduction	99 pages max.
Cassette paper size	500-sheet cassette: LGL, LTR, A4
Multifeeder paper size	Width: 76.2 to 216 mm (3.0" to 8.5") Length: 127 to 356 mm (5.0" to 14.0") Weight: 56 to 128 g/m2
Cassette paper type	500-sheet cassette: Plain paper (64 to 80 g/m2), recycled paper (64 to 80 g/m2), colored paper (64 to 80 g/m2)
Multifeeder tray paper type	Plain paper (64 to 80 g/m2), recycled paper (64 to 80 g/m2), colored paper (64 to 80 g/m2), transparency, tracing paper, label, postcard, thick paper (56 to 128 g/ m2), envelope
Cassette pickup method	Claw separation, front loading
Multifeeder tray capacity	10 mm deep, (about 100 sheets of 80 g/m2 paper)
Non-image width (leading edge)	3.0 +/- 2.0 mm (0.12" +/- 0.08")
Non-image width (left/ right)	2.5 +/- 2.0 mm (0.10" +/- 0.08")
Delivery tray stack	100 sheets max.
Image mode	Yes (text, text/photo, photo)
Toner save mode	Yes
Auto power off	No
Energy save mode	Yes (manually ON/OFF, auto OFF after specific time, auto ON after fax reception/print data reception)
Toner level detection function	Yes

1.1.6.2 Others

0006-2639

Operating environment (temperature range)	0 deg to 35 deg C/32 deg to 95 deg C
Operating environment (humidity range)	35% to 85%
Operating environment (atmospheric pressure)	0.61 to 1.01 hPa (0.6 to 1 atm)
Power supply rating	120 V (50/60 Hz), 230 V (50/60 Hz)
Power consumption	Maximum: 780 W or less Standby: 16 W (approx.; reference only) Operation: 280 W (approx.; reference only) Energy save stanby: 2 W or less (approx.; reference only)
Noise	Standby Copyboard type: 40 dB or less (impulse mode) ADF type: 40 dB or less (impulse mode: reference) Copying Copyboard type: 66 dB or less (fast mode) ADF type: 69 dB or less (fast mode: reference)
Ozone	0.05 ppm (Ave.)
Dimensions	Width Copyboard type: 475 mm (18.7"), ADF type: 475 mm (18.7") Depth Copyboard type: 442 mm (17.4"), ADF type: 442 mm (17.4") Height 250-Sheet cassette Copyboard type: 295 mm (11.6"), ADF type: 352 mm (13.9") 500-Sheet cassette Copyboard type: 327 mm (12.9"), ADF type: 384 mm (15.1")
Weight	250-Sheet cassette Copyboard type: 20.5 kg, ADF type: 22.6 kg 500-Sheet cassette Copyboard type: 21.9 kg, ADF type: 24.0 kg

1.1.6.3 Reproduction Ratio

0006-4274

Reproduction Ratio 4R3E (AB configuraiton)	Direct 1 : 1.000 Reduce I 1 : 0.500 Reduce III 1 : 0.707 Reduce V 1 : 0.816 Reduce VI 1 : 0.865 Enlarge I 1 : 1.154 Enlarge III 1 : 1.414 Enlarge IV 1 : 2.000
Reproduction Ratio 2R2E (A configuration)	Direct 1 : 1.000 Reduce I 1 : 0.500 Reduce III 1 : 0.707 Enlarge III 1 : 1.414 Enlarge IV 1 : 2.000

Reproduction Ratio 3R2E (Inch configuration)	Direct 1 : 1.000 Reduce I 1 : 0.500 Reduce II 1 : 0.647 Reduce IV 1 : 0.786 Enlarge II 1 : 1.294 Enlarge IV 1 : 2.000

1.1.6.4 Mechanisms/Functions (ADF) 0006-2701

Pickup method	Auto pickup/delivery (top separation by double-pad)
Original type	Single-sided sheet (50 to 128 g/m2)
Maximum original size	A4R, B5R, A5R, B6, LGL, LTRR, STMTR Length: 128 to 356 mm (5" to 14"), width: 139 to 216 mm (5.5" to 8.5")
Original orientation	Face-down
Original position	Center reference
Original processing mode	From single-sided to single-sided
Original reading	Stream reading
Stack	30 sheets or less (if A4/LTR or smaller) 15 sheets or less (if LGL)
Mixed original sizes	Yes (only if of the same paper configuration)
Original AE detection	No
Original size detection function	No
Stamp	No
Power supply rating	From host (5 VDC and 24 V)
Operating environment	Same as host

1.1.6.5 Mechanisms/Functions (FAX) 0006-4312

Applicable lines	Analog line (one line) PSTN (Public Switched Telephone Network)
Transmission method	Half-duplex
Transmission control protocol	ITU-T T.30 binary protocol/ECM protocol

Modulation method	G3 image signals: ITU-T V.27ter (2.4kbps, 4.8kbps) ITU-T V.29 (7.2kbps, 9.6kbps) ITU-T V.17 (14.4kbps, 12kbps, TC9.6kbps, TC7.2kbps) ITU-T V.34 (2.4Kbps, 4.8Kbps, 7.2Kbps, 9.6Kbps, 12Kbps, 14.4Kbps,16.8Kbps, 19.2Kbps, 21.6Kbps, 24Kbps, 26.4Kbps, 28.8Kbps, 31.2Kbps, 33.6Kbps) G3 procedure signals: ITU-T V.21 (No.2) 300bps ITU-T V.8, V34 (300bps, 600bps, 1200bps)
Transmission speed	33.6Kbps, 31.2Kbps, 28.8Kbps, 26.4Kbps, 24Kbps, 21.6Kbps, 19.2Kbps, 16.8Kbps, 14.4Kbps, 12Kbps, TC9.6Kbps, TC7.2Kbps, 9.6Kbps, 7.2Kbps, 4.8Kbps, 2.4Kbps With automatic fallback function
Coding	MH, MR, MMR, JBIG
Error correction	ITU-T ECM
Canon express protocol	None
Transmission output level	from 0 to -15 dBm
Minimum receive input level	-43 dBm (at. V.17)
Modem IC	CONEXANT FM336
Image reading method	Contact sensor scanning method
Scanning line density	Horizontal: Standard/Fine/Superfine 203.2 dpi (8 dots/mm) Ultrafine 406.4 dpi (16 dots/mm) (Interpolated) Vertical: Standard 97.79 dpi (3.85 lines/mm) Fine 195.58 dpi (7.7 lines/mm) Superfine/ Ultrafine 391.16 dpi (15.4 lines/mm)
Scanning density adjustment	Light, Standard, Dark: The density level of each mode can be selected by the user mode menu.
Half tone	64-gradation error diffusion system
Printing resolution	600dpi × 600dpi
Reduction for reception	Fixed reduction (75%, 90%, 95%, 97%) Auto reduction (70 to 100%)
FAX/TEL switching	Method CNG detection Message None Pseudo CI None
Answering machine connection	Yes (Telephone answering priority type) CNG detection
DPRD	Yes

Polling	Polling transmission: None Polling reception: Receives from a fax in automatic transmission mode One touch locations Max. 12
Confidential reception	None
Confidential transmission	None
Remote reception	Method ID call# (ID input method) Remote ID (with ID call#) 2 digits (Default: 25)
Memory reception	Yes
Auto dialing	Telephone number digits Average 39 digits One-touch dial Max. 12 Coded speed dial Max. 100 Group dial Max. 111 (One-touch: 11, Coded speed dial: 100) Redial Numeric button redial function (max. 120 digits)
Delayed transmission	Locations Max. 122 (One-touch: 12, Coded speed dial: 100, Numeric button: 10) No. of reseruation Max. 20
Broadcast transmission	Locations Max. 122 (One-touch: 12, Coded speed dial: 100, Numeric button: 10) Group button addresses Max. 111 (One-touch: 11, Coded speed dial: 100)
Relay broadcasting originating	None
Relay broadcasting	None
Closed network	None
Direct mail prevention	None
Dual access	File No. of reservation Max. 21 files
Activity management	a) User report Activity report (Every 20 transactions) TX/RX report 1-touch spd dial list Coded speed dial list Group dial list Memory clear list User data list Multi activity report Document memory list b) Service report System data list System dump list Key history report Counter report Print spec report
Transmitting terminal identification	Items: Time, telephone No. (max 20 digits), senders ID, address, number of transmitted pages (max 3 digits) Address: Can be registered with one-touch/ coded speed dial keys (16 characters) Senders ID: 20 characters (1 name)
Program key	None

Redial	Interval: 2 min. (from 2 to 99 min. can be selected in user data) Count: 2 times (from 1 to 10 times can be selected in user data)
Memory backup	Backup contents: dial registration data, user data, service data, time Backup IC: 128 Kbyte SRAM Backup battery: Lithium battery 3.0 V DC / 560 mAh Battery life: Approx. 5 years
Image data backup	Backup contents: Memory reception, delayed transmission and broadcast transmission image data, activity management report Backup IC: 16 Mbyte SDRAM Backup coding method: JBIG Backup battery: Rechargeable vanadium lithium battery 3.0V DC/ 50 mAh Battery life: 40 cycles with 100% discharge (Temperature 77 deg F (25 deg C))
Time	precision +/-60 sec per month

1.1.7 Function List

1.1.7.1 Printing Speed (AB type, A type)

0007-0807

T-1-39

Ratio		**Size**	**Paper size**	**copies/min**	
				Cassette	**Manual feed tray*1**
Direct		A4 (210 × 297mm / 8.3" x 11.7")	A4	15	15
		B5 (182 × 257mm / 7.2" x 10.1")	B5	13	13
		A5 (149 × 210mm / 5.9" x 8.3")	A5	-	13
Reduce	I (50.0%)	A4R -> postcard	postcard	-	6 *3
	III (70.7%)	A4R -> A5R	A5	-	13
	V*2 (81.6%)	B5R -> A5R	A5	-	13
	VI*2 (86.5%)	A4R -> B5R	B5	13	13
Enlarge	I *2 (115.4%)	B5R -> A4R	A4	15	15
	III (141.4%)	A5R -> A4R	A4	15	15

Ratio		Size	Paper size	copies/min	
				Cassette	Manual feed tray*1
	IV (200.0%)	postcard -> A4R	A4	15	15

*1: If the manual feed tray is in use, the copying speed is indicated assuming that the paper size setting is correct.
*2: AB-configured paper only.
*3: In the case of "Special paper 2 mode" selected at the user menu.
The machine performs 3-step copying speed reduction control designed to prevent cracking of the fixing heater, otherwise possibly occurring as a result overheating of the ends of the fixing assembly.

1.1.7.2 Printing Speed (Inch type) 0007-0816

T-1-40

Ratio		Size	Paper size	copies/min	
				Cassette	Manual feed tray*1
Direct		LTR (216 × 279mm / 8.5" x 11.0")	LTR	16	16
		LGL (216 × 356mm / 8.5" x 14.0")	LGL	12	12
		STMTR (139 × 216mm / 5.5" x 8.5")	STMT	-	13
Reduce	I (50.0%)	MIN	STMT	-	13
	II (64.7%)	LGL -> STMT	STMT	-	13
	IV (78.6%)	LGL -> LTR	LTR	16	16
Enlarge	II (129.4%)	STMTR -> LTRR	LTR	16	16
	IV (200.0%)	MAX (LTR)	LTR	16	16

*1: If the manual feed tray is in use, the copying speed is indicated assuming that the paper size setting is correct.
The machine performs 3-step copying speed reduction control designed to prevent cracking of the fixing heater, otherwise possibly occurring as a result overheating of the ends ofthe fixing assembly.

1.1.7.3 Printing Speed (Inch type) 0007-0818

T-1-41

Ratio		Size	Paper size	copies/min	
				Cassette	Manual feed tray*1
Direct		LTR (216 × 279mm / 8.5" x 11.0")	LTR	16	16
		LGL (216 × 356mm / 8.5" x 14.0")	LGL	12	12
		STMTR (139 × 216mm / 5.5" x 8.5")	STMT	-	13
Reduce	I (50.0%)	MIN	STMT	-	13
	II (64.7%)	LGL -> STMT	STMT	-	13
	IV (78.6%)	LGL -> LTR	LTR	16	16
Enlarge	II (129.4%)	STMTR -> LTRR	LTR	16	16
	IV (200.0%)	MAX (LTR)	LTR	16	16

*1: If the manual feed tray is in use, the copying speed is indicated assuming that the paper size setting is correct. The machine performs 3-step copying speed reduction control designed to prevent cracking of the fixing heater, otherwise possibly occurring as a result overheating of the ends ofthe fixing assembly.

1.1.7.4 Mechanisms/Functions (ADF) 0006-2951

T-1-42

Items	Specifications
Pickup	Auto pickup/delivery (top separation by double-pad)
Original type	Single-sided sheet (50 to 128 g/m2)
Original size	A4R, B5R, A5R, B6, LGL, LTRR, STMTR
	Length: 128 to 356 mm (5" to 14"), width: 139 to 216 mm (5.5" to 8.5")
Original orientation	Face-down
Original position	Center reference
Original processing mode	From single-sided to single-sided

Items	Specifications
Original reading	Stream reading
Stack	30 sheets or less (if A4/LTR or smaller)
	15 sheets or less (if LGL)
Mixed original sizes	Yes (only if of the same paper configuration)
Original AE detection	No
Original size recognition	No
Stamp	No
Power supply	From host (5 VDC and 24 V)
Operating environment	Same as host

The machine may not be able to handle the following types of originals:
- original with a carbon back
- original made of multiple layers (pasted, bound)
- original with a cut-off, 5 or more holes, or tear
- original with a clip, adhesive tape, or glue
- original with curling, wrinkling, or appreciable bending
- transparency

Advise the user to remove as much curling as possible, if any, and place the original in the original tray so that the side with the curling is the trailing edge.

1.1.7.5 Mechanisms/Functions (FAX) 0006-2968

Applicable lines
Analog line (one line)
- PSTN (Public Switched Telephone Network)

Transmission method
Half-duplex

Transmission control protocol
ITU-T T.30 binary protocol/ECM protocol

Modulation method

T-1-43

G3 image signals	ITU-T V.27ter (2.4kbps, 4.8kbps)
	ITU-T V.29 (7.2kbps, 9.6kbps)

	ITU-T V.17 (14.4kbps, 12kbps, TC9.6kbps, TC7.2kbps)
	ITU-T V.34 (2.4Kbps, 4.8Kbps, 7.2Kbps, 9.6Kbps, 12Kbps, 14.4Kbps, 16.8Kbps, 19.2Kbps, 21.6Kbps, 24Kbps, 26.4Kbps, 28.8Kbps, 31.2Kbps, 33.6Kbps)
G3 procedure signals	ITU-T V.21 (No.2) 300bps
	ITU-T V.8, V34 (300bps, 600bps, 1200bps)

Transmission speed
33.6Kbps, 31.2Kbps, 28.8Kbps, 26.4Kbps, 24Kbps, 21.6Kbps, 19.2Kbps, 16.8Kbps, 14.4Kbps, 12Kbps, TC9.6Kbps, TC7.2Kbps, 9.6Kbps, 7.2Kbps, 4.8Kbps, 2.4Kbps With automatic fallback function

Coding
MH, MR, MMR, JBIG

Error correction
ITU-T ECM

Canon express protocol
None

Transmission output level
from 0 to -15 dBm

Minimum receive input level
-43 dBm (at. V.17)

Modem IC
CONEXANT FM336

Scanner section specifications

Scanning method
Contact sensor scanning method

Scanning line density
Horizontal:

T-1-44

Standard/Fine/Superfine	203.2 dpi (8 dots/mm)

Ultrafine	406.4 dpi (16 dots/mm) (Interpolated)
Vertical:	
Standard	97.79 dpi (3.85 lines/mm)
Fine	195.58 dpi (7.7 lines/mm)
Superfine/Ultrafine	391.16 dpi (15.4 lines/mm)

Scanning density adjustment
Light, Standard, Dark: The density level of each mode can be selected by the user mode menu.

Half tone
64-gradation error diffusion system

Printer section specifications

Printing resolution
600dpi × 600dpi

Reduction for reception
Fixed reduction (75%, 90%, 95%, 97%)
Auto reduction (70 to 100%)

Functions

STAMP
None

FAX/TEL switching

T-1-45

Method	CNG detection
Message	None
Pseudo CI	None

Answering machine connection
Yes (Telephone answering priority type)
CNG detection

DPRD
Yes

Polling

Polling transmission

None

Polling reception

Receives from a fax in automatic transmission mode

One touch locations Max. 12

Confidential reception

None

Confidential transmission

None

Remote reception

T-1-46

Method	ID call# (ID input method)
Remote ID (with ID call#)	2 digits (Default : 25)

Memory reception

Yes

T-1-47

Auto dialing	
Telephone number digits	Average 39 digits
One-touch dial	Max. 12
Coded speed dial	Max. 100
Group dial	Max. 111 (One-touch : 11, Coded speed dial : 100)
Redial	Numeric button redial function (max. 120 digits)
Delayed transmission	
Locations	Max. 122 (One-touch : 12, Coded speed dial : 100) Numeric button: 10)

No. of reseruation	Max. 20

Broadcast transmission

Locations	Max. 122 (One-touch : 12, Coded speed dial : 100) Numeric button: 10)
Group button addresses	Max. 111 (One-touch : 11, Coded speed dial : 100)

Relay broadcasting originating

None

Relay broadcasting

None

Closed network

None

Direct mail prevention

None

Dual access

File No. of reservation	Max. 21 files

Activity management

a) User report
Activity report
(Every 20 transactions)
TX/RX report
1-touch spd dial list
Coded speed dial list
Group dial list
Memory clear list
User data list
Multi activity report

Document memory list

b) Service report

System data list

System dump list

Key history report

Counter report

Print spec report

T-1-48

Transmitting terminal identification	
Items	Time, telephone No. (max 20 digits), senders ID, address, number of transmitted pages (ma x 3 digits)
Address	Can be registered with one-touch/ coded speed dial keys
	(16 characters)
Senders ID	20 characters (1 name)
Program key	
None	
Redial	
Interval	2 min. (from 2 to 99 min. can be selected in user data)
Count	2 times (from 1 to 10 times can be selected in user data)
Memory backup	
Backup contents	dial registration data, user data, service data, time
Backup IC	128 Kbyte SRAM
Backup battery	Lithium battery 3.0 V DC / 560 mAh
Battery life	Approx. 5 years

Image data backup

Backup contents	Memory reception, delayed transmission and broadcast transmission image data, activity management report
Backup IC	16 Mbyte SDRAM
Backup coding method	JBIG
Backup battery	Rechargeable vanadium lithium battery 3.0V DC/ 50 mAh
Battery life	40 cycles with 100% discharge (Temperature 77 deg F (25 deg C))

Time

precision	+/-60 sec per month

T-1-49

The foregoing specifications are subject to change for product improvement.

1.1.7.6 Mechanisms/Functions (FAX) 0007-1174

Applicable lines
Analog line (one line)
- PSTN (Public Switched Telephone Network)

Transmission method
Half-duplex

Transmission control protocol
ITU-T T.30 binary protocol/ECM protocol

Modulation method

T-1-50

G3 image signals	ITU-T V.27ter (2.4kbps, 4.8kbps) ITU-T V.29 (7.2kbps, 9.6kbps)

	ITU-T V.17 (14.4kbps, 12kbps, TC9.6kbps, TC7.2kbps)
	ITU-T V.34 (2.4Kbps, 4.8Kbps, 7.2Kbps, 9.6Kbps, 12Kbps, 14.4Kbps, 16.8Kbps, 19.2Kbps, 21.6Kbps, 24Kbps, 26.4Kbps, 28.8Kbps, 31.2Kbps, 33.6Kbps)
G3 procedure signals	ITU-T V.21 (No.2) 300bps
	ITU-T V.8, V34 (300bps, 600bps, 1200bps)

Transmission speed
33.6Kbps, 31.2Kbps, 28.8Kbps, 26.4Kbps, 24Kbps, 21.6Kbps, 19.2Kbps, 16.8Kbps, 14.4Kbps, 12Kbps, TC9.6Kbps, TC7.2Kbps, 9.6Kbps, 7.2Kbps, 4.8Kbps, 2.4Kbps With automatic fallback function

Coding
MH, MR, MMR, JBIG

Error correction
ITU-T ECM

Canon express protocol
None

Transmission output level
from 0 to -15 dBm

Minimum receive input level
-43 dBm (at. V.17)

Modem IC
CONEXANT FM336 PLUS

Scanner section specifications

Scanning method
Contact sensor scanning method

Scanning line density
Horizontal:

T-1-51

Standard/Fine/Superfine	203.2 dpi (8 dots/mm)

Ultrafine	406.4 dpi (16 dots/mm) (Interpolated)
Vertical:	
Standard	97.79 dpi (3.85 lines/mm)
Fine	195.58 dpi (7.7 lines/mm)
Superfine/Ultrafine	391.16 dpi (15.4 lines/mm)

Scanning density adjustment
Light, Standard, Dark: The density level of each mode can be selected by the user mode menu.

Half tone
64-gradation error diffusion system

Printer section specifications

Printing resolution
600dpi × 600dpi

Reduction for reception
Fixed reduction (75%, 90%, 95%, 97%)
Auto reduction (70 to 100%)

Functions

STAMP
None

FAX/TEL switching

T-1-52

Method	CNG detection
Message	None
Pseudo CI	None

Answering machine connection
Yes (Telephone answering priority type)
CNG detection

DPRD
Yes

Polling

Polling transmission

None

Polling reception

Receives from a fax in automatic transmission mode

One touch locations Max. 12

Confidential reception

None

Confidential transmission

None

Remote reception

T-1-53

Method	ID call# (ID input method)
Remote ID (with ID call#)	2 digits (Default : 25)

Memory reception

Yes

T-1-54

Auto dialing	
Telephone number digits	Average 39 digits
One-touch dial	Max. 12
Coded speed dial	Max. 100
Group dial	Max. 111 (One-touch : 11, Coded speed dial : 100)
Redial	Numeric button redial function (max. 120 digits)
Delayed transmission	
Locations	Max. 122 (One-touch : 12, Coded speed dial : 100) Numeric button: 10)

No. of reseruation	Max. 20

Broadcast transmission

Locations	Max. 122 (One-touch : 12, Coded speed dial : 100) Numeric button: 10)
Group button addresses	Max. 111 (One-touch : 11, Coded speed dial : 100)

Relay broadcasting originating

None

Relay broadcasting

None

Closed network

None

Direct mail prevention

None

Dual access

File No. of reservation	Max. 21 files

Activity management

a) User report
Activity report
(Every 20 transactions)
TX/RX report
1-touch spd dial list
Coded speed dial list
Group dial list
Memory clear list
User data list
Multi activity report

Document memory list

b) Service report

System data list

System dump list

Key history report

Counter report

Print spec report

T-1-55

Transmitting terminal identification	
Items	Time, telephone No. (max 20 digits), senders ID, address, number of transmitted pages (ma x 3 digits)
Address	Can be registered with one-touch/ coded speed dial keys
	(16 characters)
Senders ID	20 characters (1 name)
Program key	
None	
Redial	
Interval	2 min. (from 2 to 99 min. can be selected in user data)
Count	2 times (from 1 to 10 times can be selected in user data)
Memory backup	
Backup contents	dial registration data, user data, service data, time
Backup IC	128 Kbyte SRAM
Backup battery	Lithium battery 3.0 V DC / 560 mAh
Battery life	Approx. 5 years

Image data backup

Backup contents	Memory reception, delayed transmission and broadcast transmission image data, activity management report
Backup IC	16 Mbyte SDRAM
Backup coding method	JBIG
Backup battery	Rechargeable vanadium lithium battery 3.0V DC/ 50 mAh
Battery life	40 cycles with 100% discharge (Temperature 77 deg F (25 deg C))

Time

precision	+/-60 sec per month

T-1-56

The foregoing specifications are subject to change for product improvement.

Chapter 2 Installation

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2.1 Making Pre-Checks

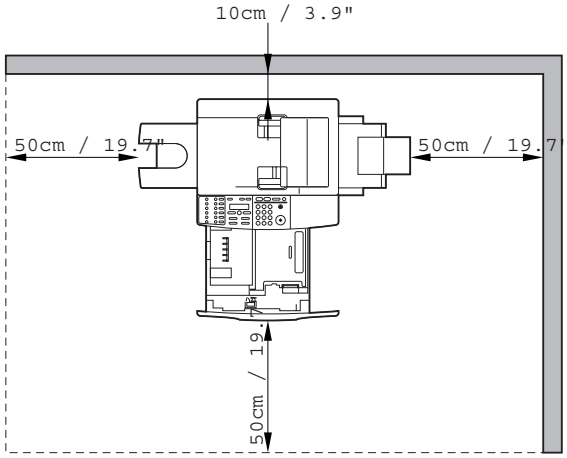
2.1.1 Selecting the Site

0006-2646

T-2-1

The site must meet the following requirements; if possible, visit the user's before the machine is delivered:

1. The site must offer a power outlet whose rating is as specified volts (-/+10%) and which may be used exclusively for the machine.
2. The site temperature must be between 0 deg and 35 deg C (32 deg and 95 deg F) and between 35% and 85% humidity. Avoid an area near a water faucet, water boiler, humidifier, and refrigerator.
3. The site must not be near a source of fire, or must not be subject to dust or ammonium gas. Also, avoid areas exposed to direct rays of the sun; if necessary, provide curtains.
4. The level of ozone generated by the machine while in use will not affect the health of the human body. However, some individuals may find its odor unpleasant. Be sure to ventilate the room well to provide a good working environment.
5. The machine will have to be at least 10cm/3.9" from any wall, offering enough space for its use.



6. The machine will have to be placed in a well-ventilated area of the room. Do not, however, place it near the inlet of air.

2.2 Unpacking and Installation

2.2.1 Before Starting 0006-2663

Go through the following before starting to install the machine:

⚠

If the machine is moved from a cold to a warm place for installation, condensation can develop in its pickup/feeding assembly, causing image faults. To avoid the condensation, leave the machine unpacked for 1 hr or more so that it will be fully used to the room temperature.
(The term condensation refers to the development of drops of water on a mental surface when it is brought from a cold to warm place. This occurs as a result of rapid cooling of vapor in the air.)

2.2.2 Installation Procedure 0006-2668

Install the machine in the following order; for details, see the appropriate sections that follow; after installation, be sure to clean up the area around the machine:

1. unpacking
2. fitting the cartridge
3. setting the toner bottle
4. putting paper in the cassette
5. putting paper in the manual feed tray
6. connecting the interface cable
7. connecting the modular cable (if equipped with fax functions)
8. connecting the power cord
9. fitting the delivery tray
10. checking the copy images
11. setting the printer functions
12. setting the fax functions (if equipped with fax functions)

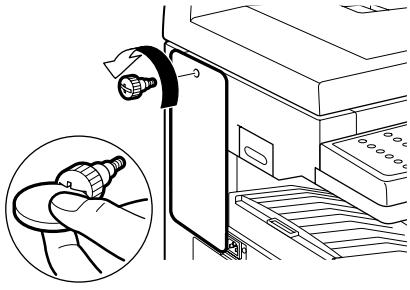
2.2.3 Unpacking 0006-2670

1) Unpack the machine, and take out the attachments. Check to see that none of the following is missing:
- cassette
- delivery tray
- cartridge (durm unit and developing unit)
- power cord
- Quick Start Guide
- Reference Guide
- CD-ROM
- Warranty card (Specific country/region models only.)
- Modular cable (Specific country/region models only.)
- Fax Guide (if equipped with fax functions)
- Others

⚠

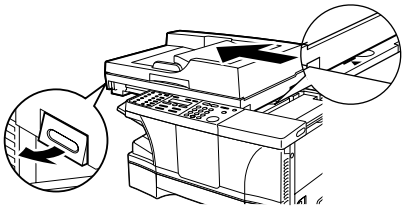
The toner bottle is not partof the shipment, but mustbe purchased separately.

2) Holding the grips on the left and right of the machine, lift it out of the box.
3) Remove the packing material: plastic sheets, securing members, and tape.
4) Remove the shipping screw.



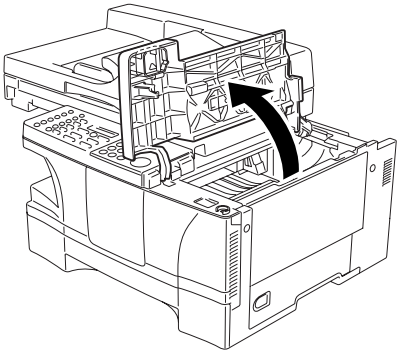
F-2-1

5) While pulling on the reader unit slide lever, slide out the reader unit to the left.



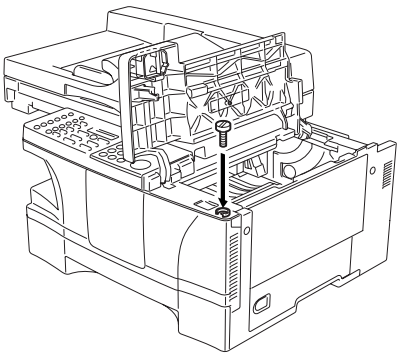
F-2-2

6) Open the cartridge cover.



F-2-3

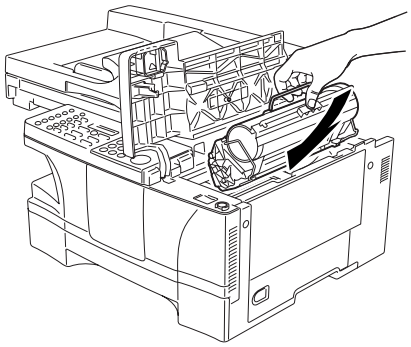
7) Store away the securing member removed in step 4 in the shipping screw slot.



F-2-4

2.2.4 Fitting the Cartridge 0006-2703

1) Unpack the cartridge, and take it out without removing its wrappings.
2) Fully insert the cartridge in the direction of the arrow as indicated.

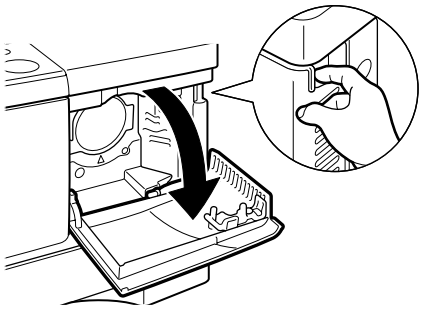


F-2-5

3) Close the cartridge cover, and put back the reader unit.

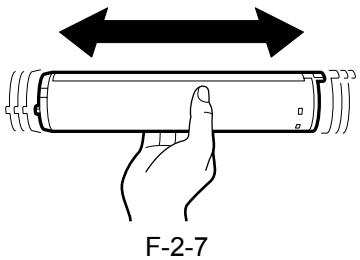
2.2.5 Fitting the Toner bottle 0006-2713

1) Open the toner supply cover.



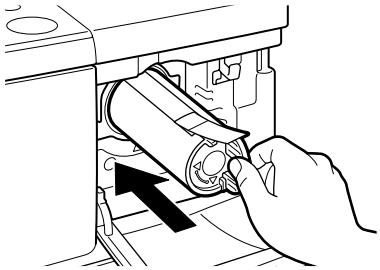
F-2-6

2) Rock the new toner bottle five or six times to distribute the toner evenly.



F-2-7

3) Holding the toner bottle lever, insert the toner bottle slowly into the machine as far as it will go.

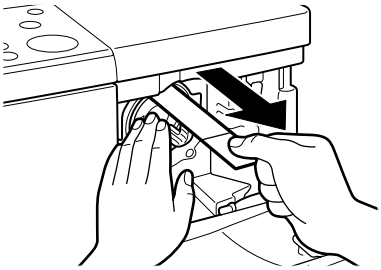


F-2-8

4) Holding the toner bottle steady with one hand, firmly and slowly pull the sealing tape tab with the other hand to remove the sealing tape completely. Throw the tape away.

⚠

To avoid breaking the tape, do not pull it at an angle.

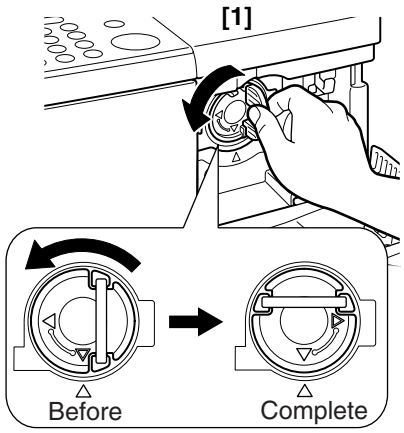


F-2-9

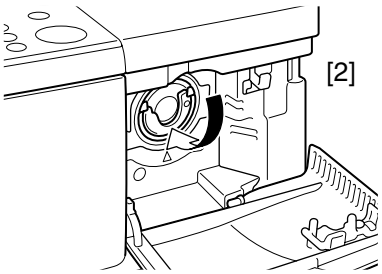
5) Holding the toner bottle lever, turn it counterclockwise so that mark on the toner bottle aligns with the mark on the machine [1]. Close the toner cartridge lever [2].

⚠

If you can's turn the toner bottle, please push it into slot unit stop and turn again.

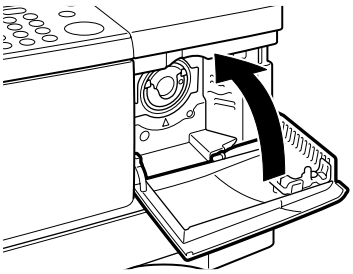


F-2-10



F-2-11

6) Close the toner supply cover.

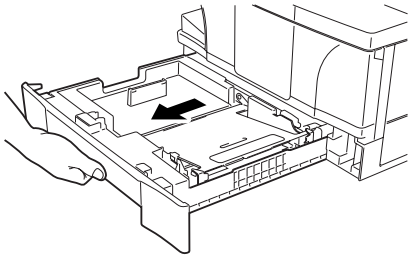


F-2-12

2.2.6 Putting Paper in the Cassette

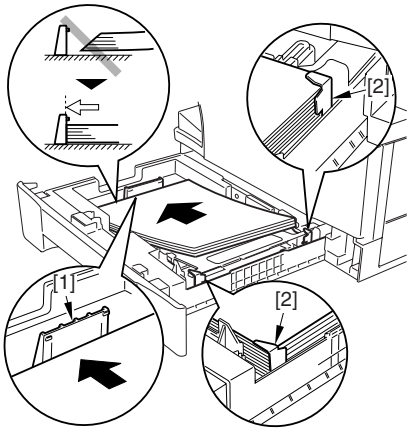
0006-2717

1) Lift the paper cassette slightly, and pull it out until it stops.



F-2-13

2) Put paper in the cassette, under the claw must indicate what [1] and [2] are.



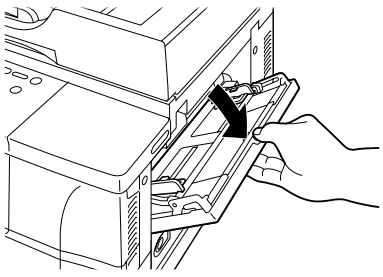
F-2-14

3) Slide in the cassette until it stops.

2.2.7 Putting Paper in the Manual Feed Tray

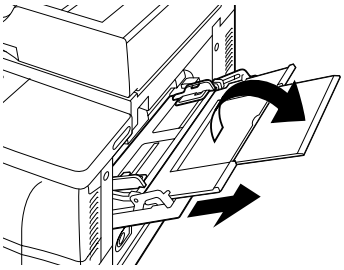
0006-2718

1) Open the manual feed tray.



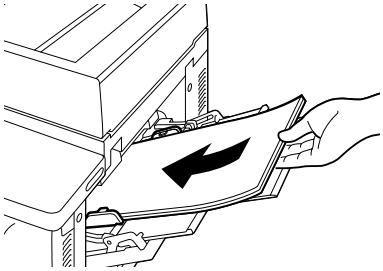
F-2-15

2) Slid out the auxiliary tray.



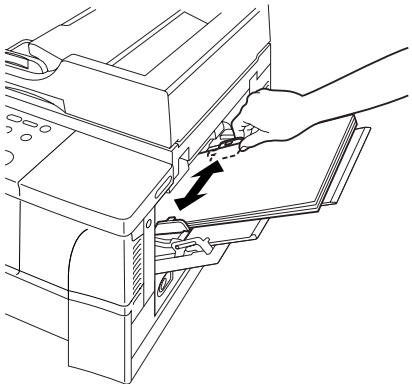
F-2-16

3) Place the paper (with the side to be copied onto facing up).



F-2-17

4) Adjust the slide guide to suit the width of the paper.



F-2-18

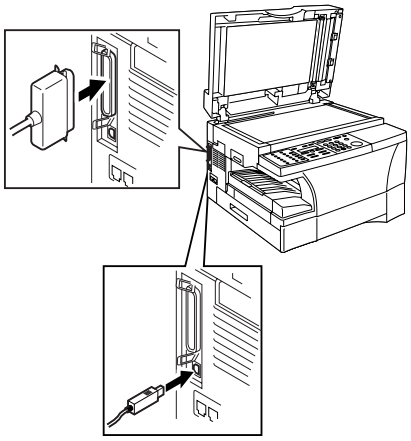
2.2.8 Connecting the Interface Cable

0006-2721

1) Connect the cable to the USB port if a USB cable is to be used, or to the parallel port if a parallel interface cable is to be used. Be sure also to connect the cable to the PC.

⚠

Use interface cables that comply with specifications of the machine.
USB cable specifications: 5 m or shorter.
Parallel interface cable specifications: 3 m or shorter (Compliant to IEEE1284, for bi-directional communication)

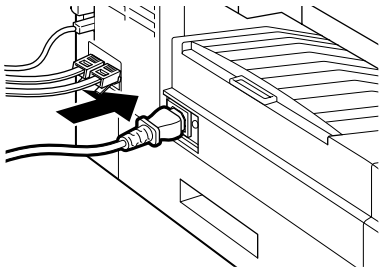


F-2-19

2.2.9 Connect the power cord

0006-2723

1) Connect the power cord.

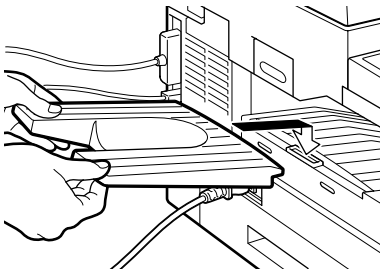


F-2-20

2.2.10 Fitting the Delivery Tray

0006-2733

1) Mount the delivery tray.



F-2-21

2.2.11 Setting the Printer Functions

0006-2744

1) Install printer drivers, and perform test printing from the PC to check the images.

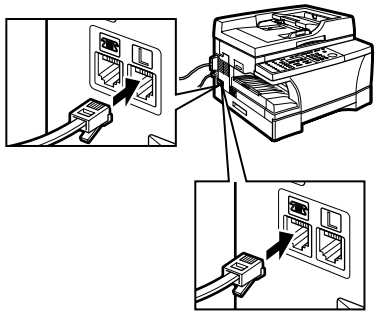
⚠

Be sure that the PC environment meets the requirements of the machine before installing the printer drivers.
For details, refer to Quick Start Guide.

2.3 Connection to Telephone Line

2.3.1 Connecting the Modular Cable (if equipped with fax functions) 0006-2740

1) Connect one end of the modular cable to the terminal [L], and the other end to the socket of the telephone.
If both telephone and fax are to be used, connect the modular cable from the telephone (or answering machine) to the [telephone] terminal.



F-2-22

2.3.2 Setting the Date/Time (user mode) 0006-2748

1) Press the Additional Functions key.
2) Press the Left/Right Arrow key, to select '5.TIMER SETTING'
3) Press the OK key.
4) Check to make sure that '1.DATE/TIME SETTING' is indicated and press the OK key.
5) Enter the current date and time. Press the Left/Right Arrow key to move the cursor to the character to enter and enter a number using the keypad.
6) Press the OK key so that the date/time will be stored.

2.3.3 Setting the Dial Type 0006-2776

1) Press the Additional Functions key.
2) Press the Left/Right Arrow key to select '3.FAX SETTING'.
3) Press the OK key.
4) Check to see that '1. USER SETTING' is indicated and press the OK key.
5) Check to see that '1.TEL LINE SETTING' is indicated and press the OK key.
6) Press the Left/Right key to select '2.TEL LINE TYPE'.
7) Press the OK key.
8) Press the Left/Right key to select 'TOUCH TONE' or 'ROTARY PULSE'.
9) Press the OK key so that the selected line type is stored.

2.3.4 Executing Communications Testing 0006-2820

1) Press the Fax key in the control panel so that the machine will be in fax mode.

2) Try sending and receiving an original and check the operation and the images.

2.4 Checking the Images/Operations

2.4.1 Checking the Copy Images

0006-2743

1) Execute the following in user mode to stir toner: 6.ADJUST/CLEAN>4.MIX TONER.
2) Place an original on the copyboard glass or in the ADF and select the cassette or the manual feed tray as the source of paper; then, check the copied images.

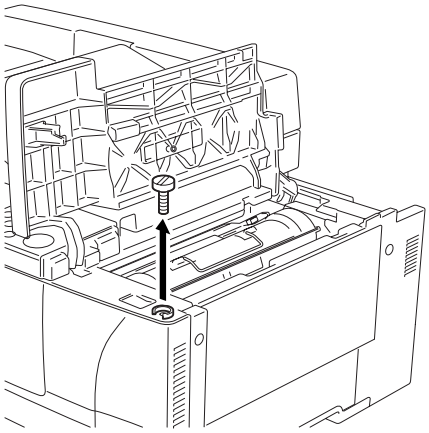
2.5 Relocating the Machine

2.5.1 When Relocating the Machine

0006-2950

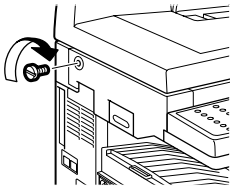
If the machine must be moved by truck or other means of transportation, be sure to go through the following:

1. If the machine is equipped with fax function and the move will take 2 hours or more, the fax image data, if any, will be lost. Advise the user on this and, if necessary, print out the image data.
2. Be sure no communication is under way with an external device.
3. Check that the contact sensor is in home position and disconnect the power cord.
4. Disconnect the interface cable and modular cable.
5. Remove the delivery tray.
6. Slide the reader unit to the left, and open the cartridge cover.
7. Take out the shipping screw that have been stored away inside the machine.



F-2-23

8. Take out the cartridge from inside of the machine and put it in a protective bag or the like to avoid direct rays of the sun.
9. Close the cartridge cover and put back the reader unit.
10. Fit the shipping screw you removed in step 7 and secure the contact sensor in place.



F-2-24

11. Open the ADF (copyboard cover) and place A4 (LTR) sheet on the copyboard glass then, close the ADF (copyboard cover).
12. Tape the machine's covers in place so that it will not open in transit.
13. Pack the machine and start the relocation.

⚠

Take full care to avoid severe vibration during the relocation.

Chapter 3 Basic Operation

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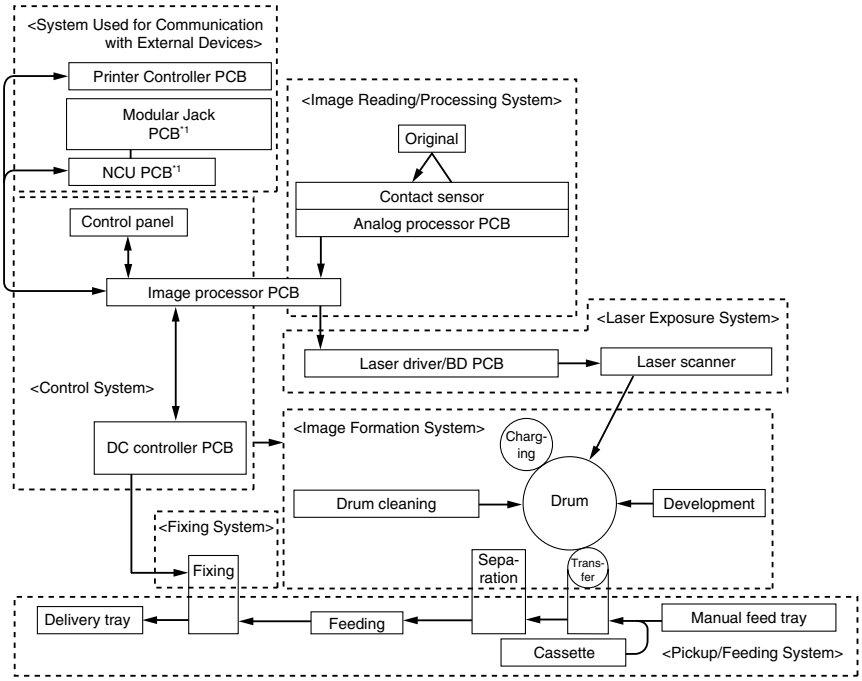
3.1 Construction

3.1.1 Functional Construction

0006-2835

The machine may broadly be divided into the following 7 functional blocks:

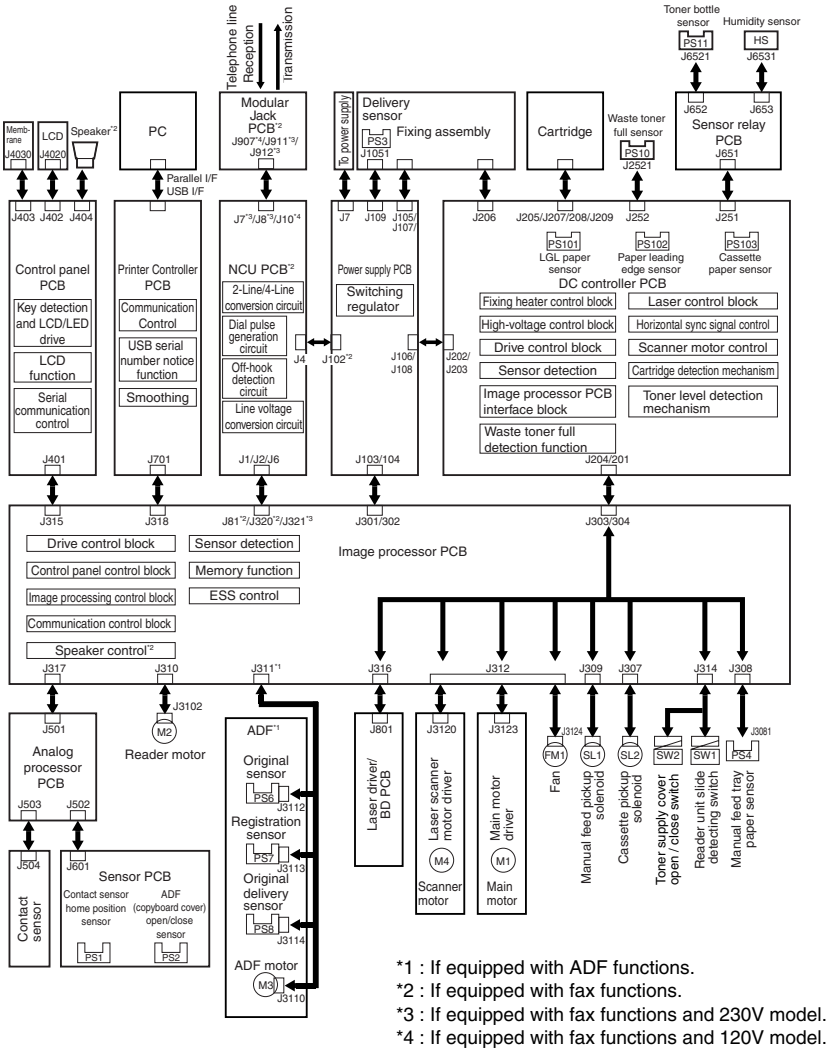


*1 : If equipped with fax functions.

F-3-1

3.1.2 Functional Block Diagram

0006-2838



*1 : If equipped with ADF functions.
*2 : If equipped with fax functions.
*3 : If equipped with fax functions and 230V model.
*4 : If equipped with fax functions and 120V model.

F-3-2

3.1.3 Image Processor PCB

0006-4284

It controls the machine as a whole, and communicates directly with all PCBs except the sensor PCB and modular jack PCB.

Drive Control Block

The drive control mechanism acts on the reader motor and the ADF motor by the work of the ASIC and motor drive IC.

Control Panel Control Block

The control panel control block receives the state of control keys while sending/receiving data in serial communication with the control IC of the control panel PCB. Also, it sends LED and LCD signals to the control panel

PCB.

Image Processing Control Block
The image processing control block has the following functions:
- It subjects the digital image data from the analog processor PCB to enlargement/reduction processing, shading correction, smoothing, and other image processing, thereby converting it to 600x600-dpi image signals (VD0, VD0*).
- It converts the analog image data from fax communication into 600x600-dpi image signals (VD0, VD0*).
- It uses a horizontal sync signal (BD0*) as a trigger to send image signals (VD0, VD0*) to the laser unit.
- The image data from the contact sensor is re-arranged, and the intensity of the contact sensor LED is controlled.

Sensor Detection
It detects the state of each sensor of the reader unit and the ADF.

ESS Control
It controls the ESS function used to reduce the power consumption while the machine is in standby state.

Memory Function
The 16MB (as mounted) SDRAM used for the storage of image data is capable of storing about 255 pages in fax reception made of Canon Fax Standard Chart No.1. The image data is backed up by a vanadium lithium secondary battery (BAT2), so that it remains intact for about 2 hr after the machine is deprived of power. The 128-KB SRAM is used to store user data and service data, and is backed up by a lithium battery (BAT1) so that the data may be retained for about 5 yr after the machine is deprived of power.

Speaker Control (if equipped with fax functions.)
It turns on/off or control the volume of the error sound, key sound, and line monitor sound generated by the speaker.

MEMO:
The volume of the line monitor or the sound of the key sound or the error sound is adjusted in user mode.

Communication Control Block (if equipped with fax functions)
The communication control block detects line signals (CNG, DTMF). The 33.6-kps modem is controlled by the main CPU on the image processor PCB for modulation and demodulation of transmission/reception data. It also is used to send the DTMF signal.

3.1.4 DC Controller PCB

0006-2850

Fixing Heater Control Block
The fixing heater control block monitors the temperature reading of the thermistor to ensure that the temperature of the heater reaches a specific level. If an error is detected in the temperature of the heater, it stops the power to the heater.

High-Voltage Control Block
The high-voltage control block controls the high voltage for the primary charging roller, developing cylinder,

transfer charging roller, and fixing film. Of these, the application of DC bias is controlled based on the readings of the humidity around the machine (checked by the humidity sensor) of the primary charging roller, developing cylinder, and transfer roller.
This mechanism of control is used to increase the bias level in a low humidity environment, thereby improving the reproduction of images.
In a medium to high humidity environment, on the other hand, it serves to save on the level of toner consumption.

Drive Control Block
The drive control block controls the main motor, pickup solenoid, and fan.

Sensor Detection
The sensor condition of the printer block and the various pickup block are checked to monitor the drive mechanism and to detect the presence/absence of the cartridge, collection of waste toner, presence/absence of the toner bottle, and the relative humidity around the machine.

Image Processor PCB Interface block
The image processor PCB interface block sends the horizontal sync signal (BD0*) to the image processor PCB. It also returns a state signal in response to a command signal (serial) from the image processor PCB, thereby communicating the state of the printer block to the image processor PCB.

Laser Control Block
The laser control block controls the drive of the laser diode of the laser scanner unit according to the image signals (VD0, VD0*) from the image processor PCB. Also, it controls the intensity of the laser diode (auto power control) for each line of print data.

Horizontal Sync Signal Control
When the laser beam reaches the horizontal print start position, the laser beam detection signal (BDI*) from the laser scanner unit is detected, and the horizontal sync signal (BD0*) is sent to the image processor PCB. Also, the horizontal sync signal (BD*) is monitored for frequency of output.

Scanner Motor Control
The scanner motor is controlled so that the horizontal resolution of the print image is 600 dpi. Also, the laser beam detection signal (BDI*) from the laser scanner unit is detected to monitor the rotation of the scanner motor.

Cartridge Detection Mechanism
In wait state, the CPU on the DC controller PCB measures the voltage level of the cartridge detection signal (CRGSNS) a specific number of times to check the presence/absence of the cartridge when an AC bias is applied to the primary charging roller.

Toner Level Detection Mechanism
While the machine is in wait state, the toner level detection signal (ADDTNR; based on the comparison of the developing bias output and the antenna output inside the cartridge) occurring when the developing AC bias is detected during normal rotation to monitor the toner level inside the cartridge.

3.1.5 Control Panel PCB

0006-2855

Key Detection and LCD/LED Drive
The keys are monitored, and the LCD and LEDs are driven.

LCD Function
The LCD consisting of 2 lines of 20 characters is controlled according to the display signals from the image processor PCB.

Serial Communication Control
The state of the control keys is monitored based on serial communications with the image processor PCB. LCD and LED drive data are received.

3.1.6 Power Supply PCB

0006-2857

Switching Regulator
The following is generated using power from the power outlet for loads: +24 DC, +12 VDC, +5 VSDC, +5 VDC, +3.3 VSDC, +3.3 VDC.

3.1.7 Analog Processor PCB

0006-2858

The analog image data read by the contact sensor is converted into digital image data and sent to the ASIC of the image processor PCB.

3.1.8 Sensor PCB

0006-2860

The signals from the ADF (copyboard cover) open/close sensor and the contact sensor home position sensor are sent out to the image processor PCB via the analog processor PCB.

3.1.9 Laser Driver/BD PCB

0006-2861

The image signals (VD0, VD0*) from the image processor PCB is converted into data used for laser adjustment (to cause the laser diode to emit a laser beam). Also, the generated laser beam is detected, and the laser beam detection signal (BDI*) is sent to the DC controller PCB.

3.1.10 Main Motor/Scanner Motor Driver

0006-2862

The main motor/scanner motor is driven according to the drive signals from the DC controller PCB.

3.1.11 Printer Controller PCB

0006-2863

The communications with the PC are controlled. The image data from the PC is converted into print data for the machine, and is sent to the image processor PCB.

Communication Control
Communications with the PC are controlled using a bi-directional parallel interface (IEEE std 1284-1994) or USB (Ver. 1.1). The communication protocols used for bi-directional communications include: Nibble, ECP, Rapid Port. The communication with the image processor PCB by means of a video interface are also controlled.

USB Serial Number Notice Function
The USB serial number is communicated to the PC.

Smoothing
The 300 x 300-dpi image data from the PC is converted into image data equivalent of 1200 x 600 dpi; or, 600 x 600-dpi image data is converted into data equivalent of 2400 x 600-dpi.

3.1.12 NCU PCB (if equipped with fax functions) 0006-2864

2-Line/4-Line Conversion Circuit
Signals from a 2-line telephone line are converted into 4-line signals (transmission signals and reception signals). Also, the transmission signals from the image processor PCB are prevented from entering the reception circuit.

Dial Pulse Generation Circuit
The dial pulse generation circuit generates dial pulses by turning on and off the relay inside it according to the control signals from the image processor PCB. It then sends the dial signals to the telephone line by way of the modular jack PCB.

Off-Hook Detection Circuit
An off-hook state is detected with reference to the direct current flowing into the circuit, occurring when the telephone connected to the telephone terminal of the modular jack PCB is off the hook.

Line Voltage Conversion Circuit
The primary side of the NCU PCB is controlled using a line voltage of +48 VDC. In light of this, the DC component is cut by the capacitor, and only the audio signals are converted into voltages suited to the modem level.

3.1.13 Modular Jack PCB (if equipped with fax functions) 0006-2865

The signals from the 2 modular jacks (for telephone line and telephone connection) are communicated to the line voltage conversion circuit of the NCU PCB, and the signals from the fax are communicated to the telephone line.

3.1.14 Sensor Relay PCB 0006-2866

Relay the connection between the DC controller PCB and the sensors below
- Humidity sensors (HS)
- Toner bottle sensor (PS11)

3.1.15 Controlling the Main Motor

0006-2869

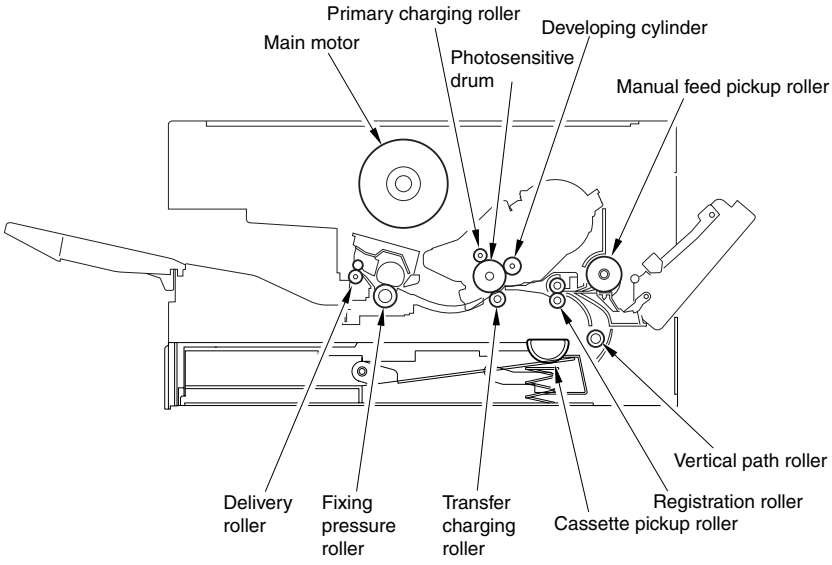
The rotation of the machine's main motor (M1) is controlled by the drive signal (MON) generated by the DC controller PCB.

The machine keeps the following ON at all times using the drive of the main motor, thereby moving paper at the selected printing speed:

- vertical path roller
- registration roller
- primary charging roller
- developing cylinder
- photosensitive drum
- transfer charging roller
- fixing pressure roller
- delivery roller

The machine uses the activation of the cassette pickup solenoid or the manual feed pickup solenoid as a trigger (occurring when the main motor is ON) to drive the following pickup rollers for a specific period of time:

- cassette pickup roller
- manual feed pickup roller

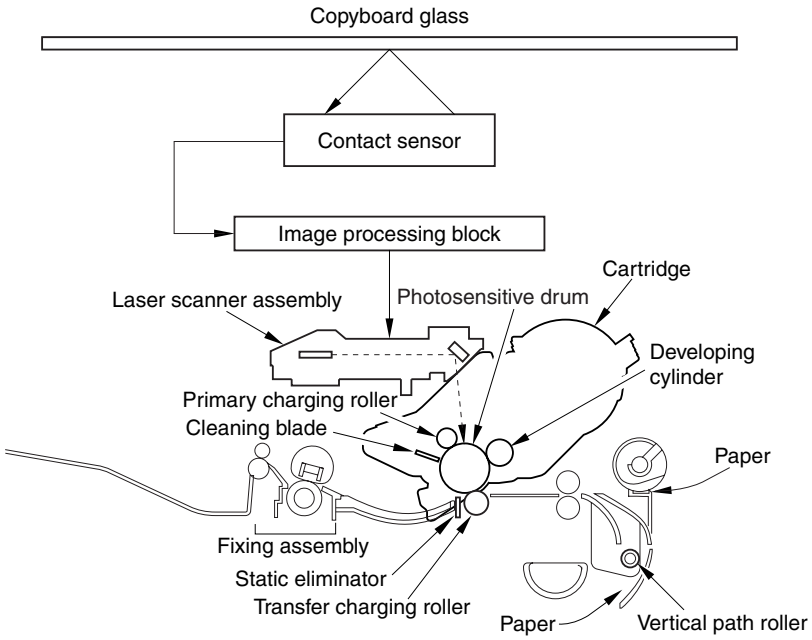


F-3-3

3.1.16 Reproduction Processes

0007-3729

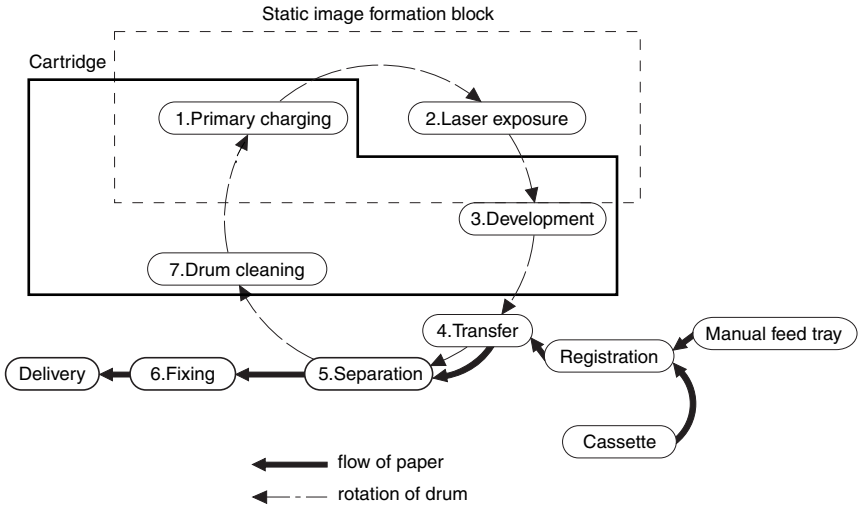
The machine uses an indirect electrostatic method, and is constructed as shown in the following figure:



F-3-4

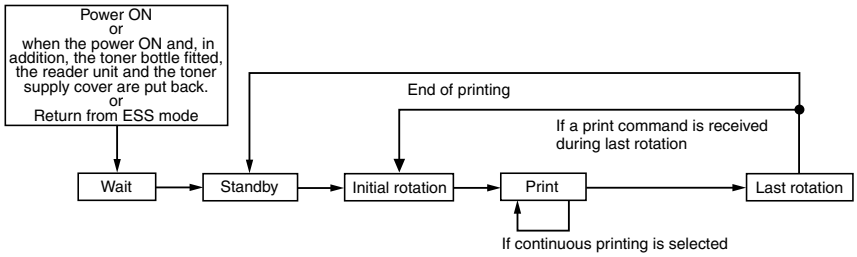
The machine has a cartridge construction, in which the drum, toner housing, primary charging assembly, developing cylinder, and cleaning blade are designed as a single entity (items serving as the core of image formation).
It uses SURF as its fixing method, in which a fluorine-coated film is heated by a heater, nd paper is moved between the film and the fixing pressure roller (the image is fused by the work of heat and pressure.)
The machine's image formation processes are as follow:

Step 1 Primary charging (AC and negative DC)
Step 2 Laser exposure
Step 3 Development (AC and negative DC)
Step 4 Transfer (positive DC)
Step 5 Separation
Step 6 Fixing
Step 7 Drum cleaning



F-3-5

The machine's sequence of operation is controlled by the CPU on the image processor PCB and the CPU on the DC controller PCB. The following figure shows the sequential flow, and the following table provides descriptions of the periods involved.


Power ON
or
when the power ON and, in addition, the toner bottle fitted, the reader unit and the toner supply cover are put back.
or
Return from ESS mode
End of printing
If a print command is received during last rotation
Wait
Standby
Initial rotation
Print
Last rotation
If continuous printing is selected

F-3-6

T-3-1

Period	Definition	Purpose	Remarks
WAIT (wait)	From when the power is turned on until when the application of the primary charging AC bias is started and stopped.	The machine's mechanical and electrical states are checked.	A check is made on the presence/absence of a cartridge and for paper remaining inside the machine. The machine also shifts the WAIT state when the power ON and, in addition, the toner bottle fitted, the reader unit and the toner supply cover are put back, or after returning from ESS mode.

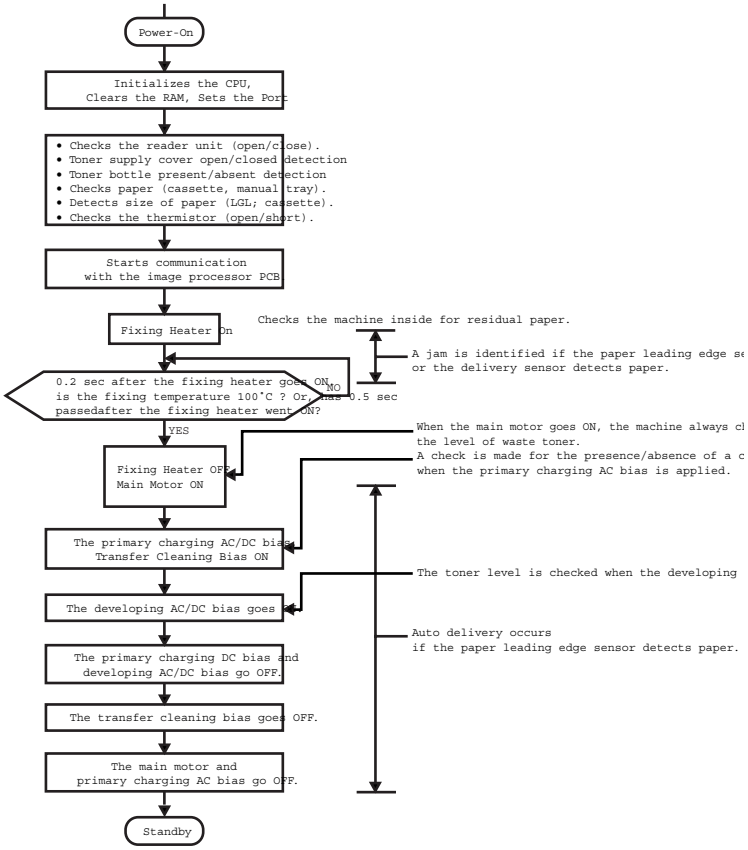
Period	Definition	Purpose	Remarks
STBY (standby)	After the end of WAIT, unit the Start key is pressed.	The machine is ready for a print command.	If a shift is from last rotation of printing on LTR or larger, the fixing heater is subjected to rest heating temperature control for 5 sec.
INTR (initial rotation)	After a press on the Start key, until the leading edge is detected by the paper leading edge sensor.	The machine starts up process conditions and picks up paper for printing.	The fixing heater is subjected to temperature control (start-up temperature control, paper passage temperature control); scanner rotation speed adjustment and ATVC control are executed.
PRINT (print)	From when the paper leading edge sensor detects the leading edge of paper to 0.5 sec after it detects the trailing edge of paper.	The DC controller PCB generates the BD0* signal, and the image processor PCB sends VD0* signal and VD0 signal, thereby forming a latent image on the photosensitive drum and turning it into a toner image.	
LSTR (last rotation)	From when printing ends until the main motor stops.	The drum surface is made free of potential and the transfer charging roller is cleaned.	After last rotation, the machine shifts to standby to wait for a print command, in response to which it immediately shifts to initial rotation.

3.2 Basic Sequence

3.2.1 Basic Sequence of Operations at Power-On

0006-2867

The following is the flow of operation occurring from when the machine is turned on until it enters standby state:


Power-On
Initializes the CPU,
Clears the RAM, Sets the Port
• Checks the reader unit (open/close).
• Toner supply cover open/closed detection
• Toner bottle present/absent detection
• Checks paper (cassette, manual tray).
• Detects size of paper (LGL; cassette).
• Checks the thermistor (open/short).
Starts communication
with the image processor PCB
Fixing Heater On
Checks the machine inside for residual paper.
A jam is identified if the paper leading edge se
or the delivery sensor detects paper.
0.2 sec after the fixing heater goes ON,
is the fixing temperature 100°C ? Or, has 0.5 sec
passedafter the fixing heater went ON?
NO
YES
When the main motor goes ON, the machine always cl
the level of waste toner.
A check is made for the presence/absence of a c
when the primary charging AC bias is applied.
Fixing Heater OFF
Main Motor ON
The primary charging AC/DC bias
Transfer Cleaning Bias ON
The toner level is checked when the developing
The developing AC/DC bias goes
Auto delivery occurs
if the paper leading edge sensor detects paper.
The primary charging DC bias and
developing AC/DC bias go OFF.
The transfer cleaning bias goes OFF.
The main motor and
primary charging AC bias go OFF.
Standby

F-3-7

Chapter 4 Original Exposure System

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4.1 Construction

4.1.1 Major Components

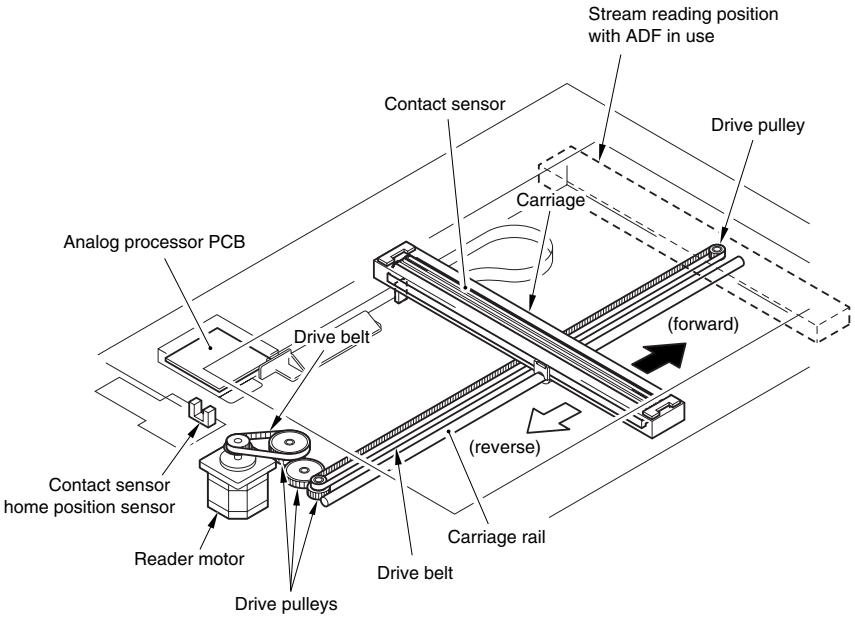
0006-2872

The image reading/processing system consists of the following major components:

- contact sensor used to read originals
- reader motor, drive pulley, drive belt, carriage, and carriage rail used to move the contact sensor
- The analog processor PCB is used to convert the analog image data colleted by the contact sensor into digital image data.

The image reading mechanism is controlled based on the drive signals from the image processor PCB, thereby moving the contact sensor to read the original placed on the copyboard glass.

When the ADF is used, the contact sensor is moved to stream reading position, and the originals are read when they are moved by the ADF.



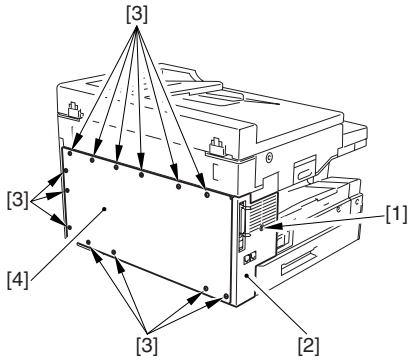
F-4-1

4.2 Parts Replacement Procedure

4.2.1 Reader Unit

4.2.1.1 Removing the Rear Cover 0006-3235

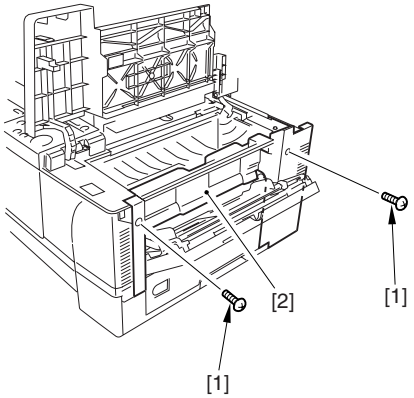
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-4-2

4.2.1.2 Removing the Right Cover 0006-3853

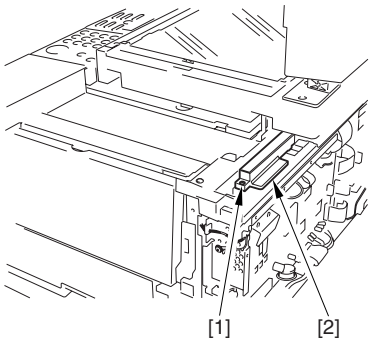
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-4-3

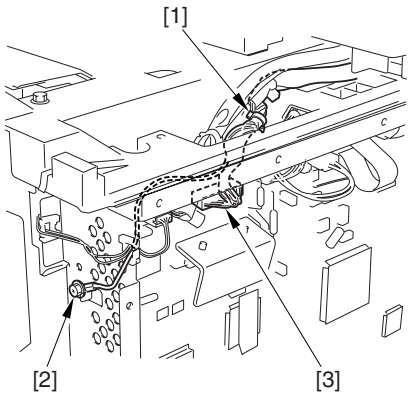
4.2.1.3 Removing the ADF 0006-3855

1) Remove the screw [1], and detach the ADF harness cover [2].



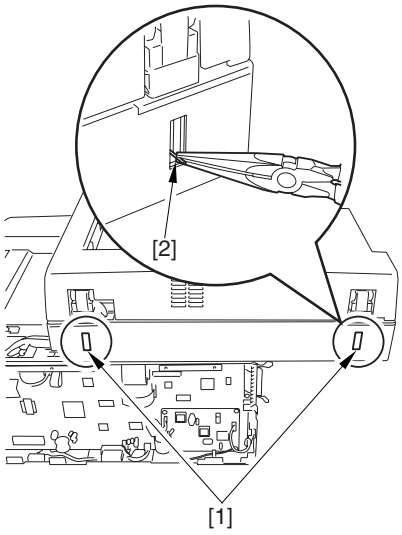
F-4-4

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



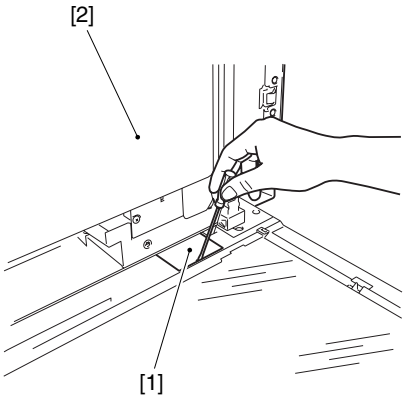
F-4-5

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



F-4-6

6) Return the reader unit to its initial position.
7) Open the ADF.
8) Using a flat-blade screwdriver, remove the cover [1].
9) Detach the ADF [2] from the host machine.



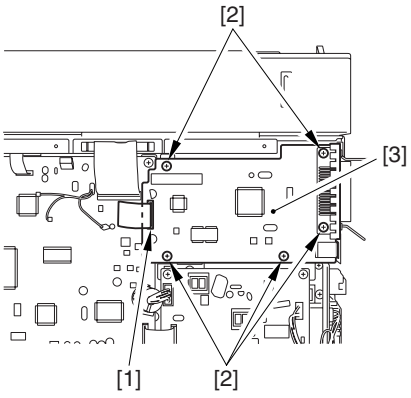
F-4-7

⚠

Take care so that no part will become trapped by harness of the ADF.

4.2.1.4 Removing the Printer Controller PCB 0006-3236

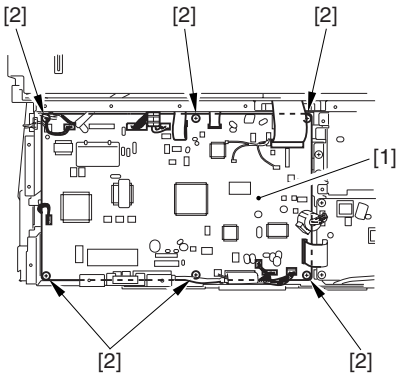
1) Disconnect the connector [1].
2) Remove the 5 screws [2], and detach the printer controller PCB [3].



F-4-8

4.2.1.5 Removing the Image Processor PCB 0006-3237

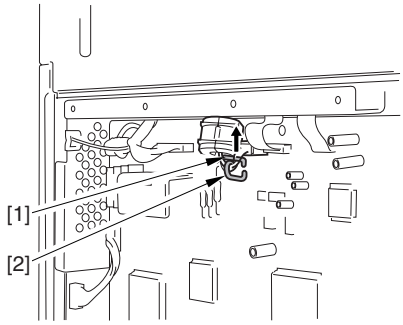
1) Remove the retainer for the flexible cable used to connect the analog processor PCB and the image processor PCB.
2) Remove the core, and disconnect all connectors from the image processor PCB [1].
3) Remove the 6 screws [2], and detach the image processor PCB [1].



F-4-9

⚠

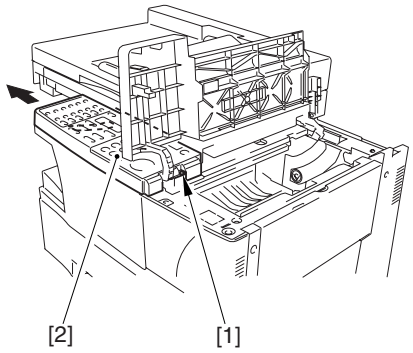
For installation, fasten the core to the upper position with the part [1] and fix the cable with the part [2].



F-4-10

4.2.1.6 Removing the Control Panel 0006-3269

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.

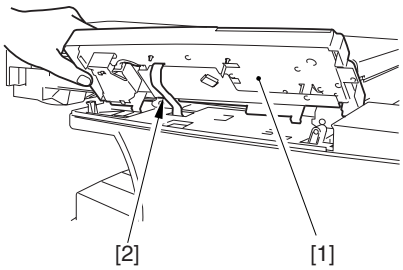


F-4-11

3) Close the cartridge cover.
4) Disconnect the connector [2], and detach the control panel [1].

⚠

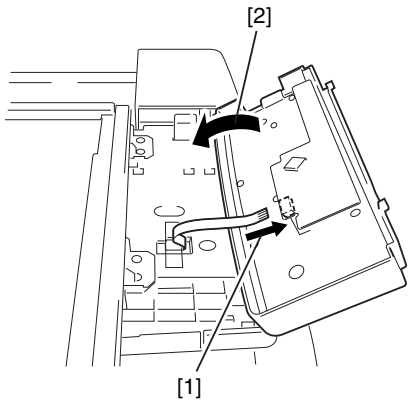
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-4-12

MEMO:

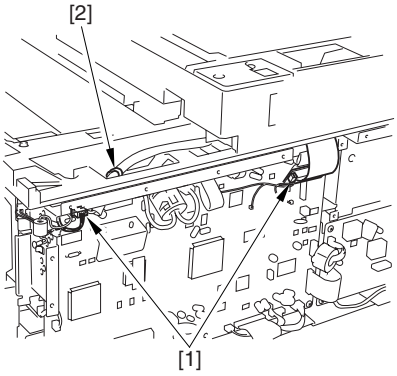
To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



F-4-13

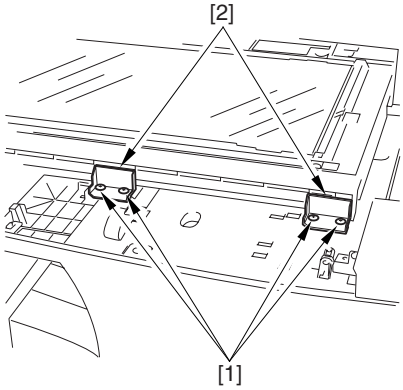
4.2.1.7 Removing the Reader Unit 0006-3267

1) Disconnect the 2 connectors [1], and remove the harness retainer [2].



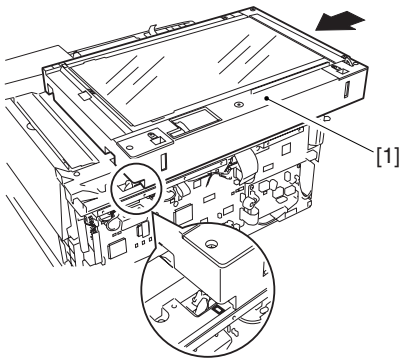
F-4-14

2) Remove the 4 screws [1], and detach the 2 reader stoppers [2].



F-4-15

3) Slide the reader unit [1] as shown, and detach the reader unit [1] from the front side.

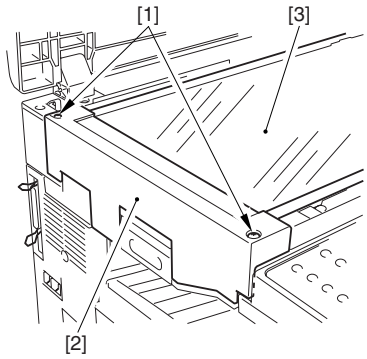


F-4-16

4.2.2 Copyboard glass

4.2.2.1 Removing the Copyboard Glass 0006-2823

1) Open the ADF (copyboard cover).
2) Remove the 2 screws [1], and detach the copyboard glass retainer [2].
3) Remove the copyboard glass [3].

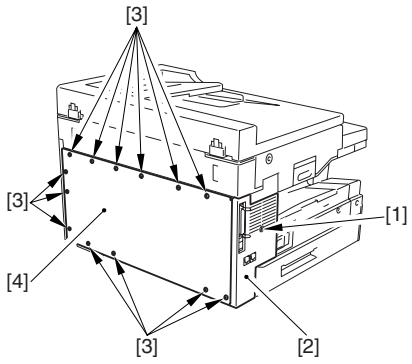


F-4-17

4.2.3 Sensor PCB

4.2.3.1 Removing the Rear Cover 0006-3849

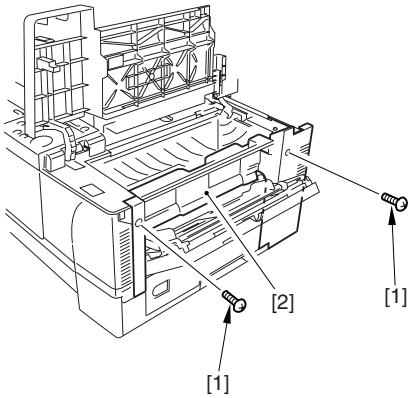
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-4-18

4.2.3.2 Removing the Right Cover 0006-3850

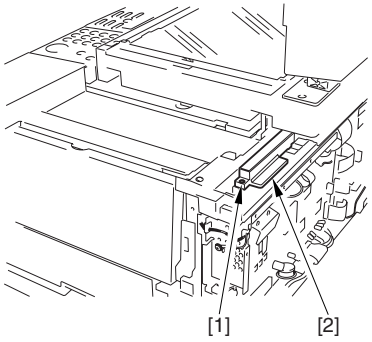
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-4-19

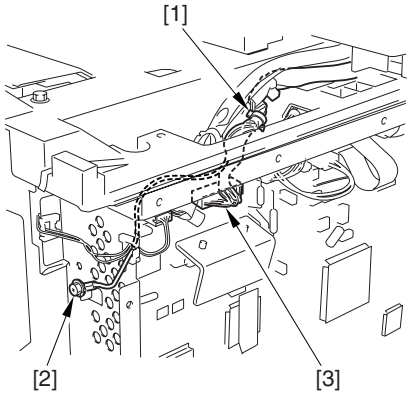
4.2.3.3 Removing the ADF 0006-3851

1) Remove the screw [1], and detach the ADF harness cover [2].



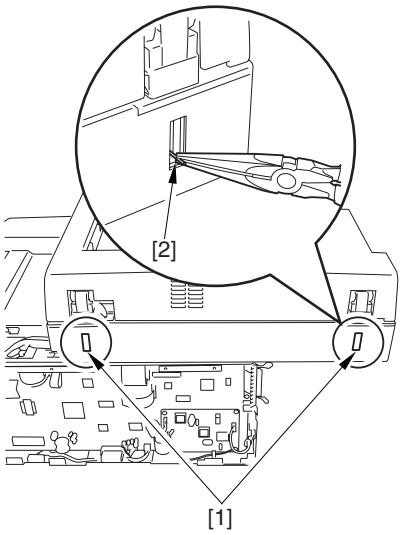
F-4-20

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



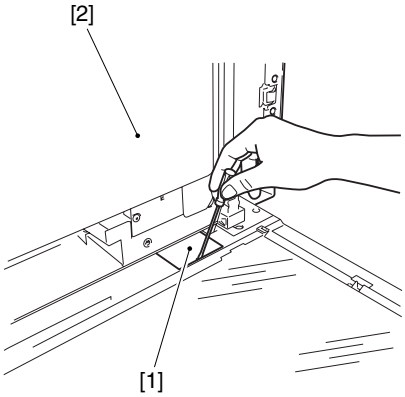
F-4-21

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



F-4-22

6) Return the reader unit to its initial position.
7) Open the ADF.
8) Using a flat-blade screwdriver, remove the cover [1].
9) Detach the ADF [2] from the host machine.



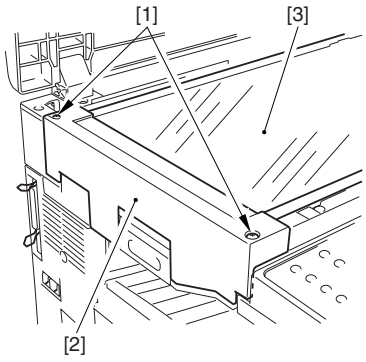
F-4-23

⚠

Take care so that no part will become trapped by harness of the ADF.

4.2.3.4 Removing the Copyboard Glass 0006-3061

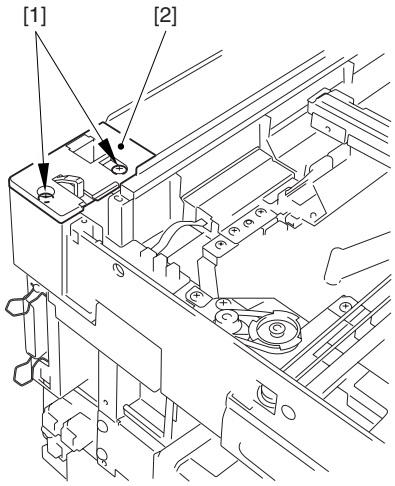
1) Open the ADF (copyboard cover).
2) Remove the 2 screws [1], and detach the copyboard glass retainer [2].
3) Remove the copyboard glass [3].



F-4-24

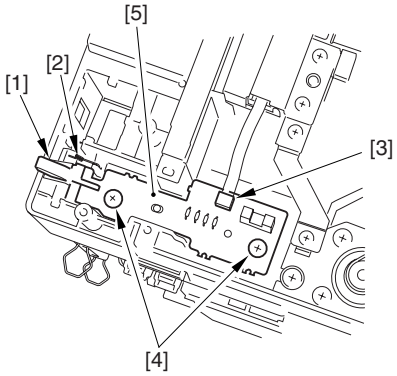
4.2.3.5 Removing the Sensor PCB 0006-3062

1) Move the contact sensor to the center.
2) Remove the 2 screws [1], and detach the left upper cover [2].



F-4-25

3) Remove the sensor flag [1] and the spring [2].
4) Disconnect the connector [3].
5) Remove the 2 screws [4], and detach the sensor PCB [5].

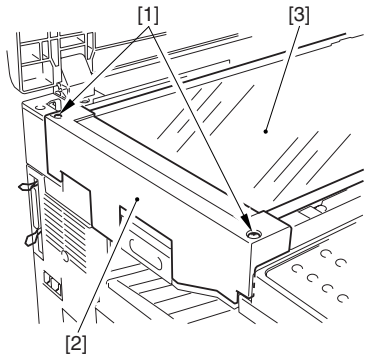


F-4-26

4.2.4 Scanner Motor

4.2.4.1 Removing the Copyboard Glass 0006-3231

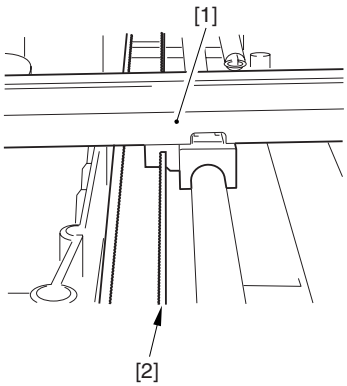
1) Open the ADF (copyboard cover).
2) Remove the 2 screws [1], and detach the copyboard glass retainer [2].
3) Remove the copyboard glass [3].



F-4-27

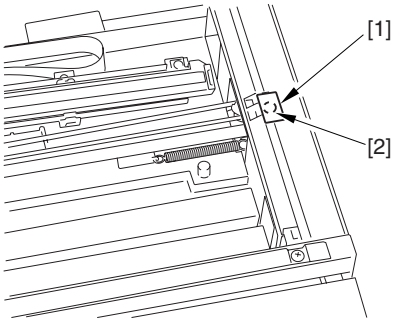
4.2.4.2 Removing the Reader Motor Drive Unit 0006-3232

1) Free the contact sensor [1] from the drive belt [2].



F-4-28

2) Using a flat-blade screwdriver, remove the cover [1], and remove the screw [2].



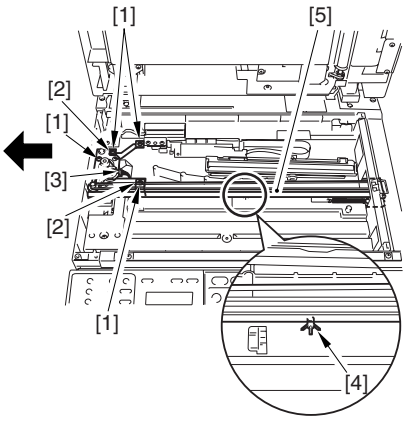
F-4-29

3) Slide the reader unit to the left.

4) Remove the 4 screws [1], and detach the 2 grounding plates [2].

5) Disconnect the connector [3].

6) While paying attention to the rib [4], lift the rear motor drive unit [5] toward the right to detach.



F-4-30

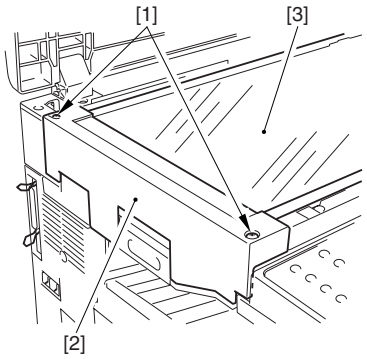
4.2.5 Contact sensor

4.2.5.1 Removing the Copyboard Glass 0006-3221

1) Open the ADF (copyboard cover).

2) Remove the 2 screws [1], and detach the copyboard glass retainer [2].

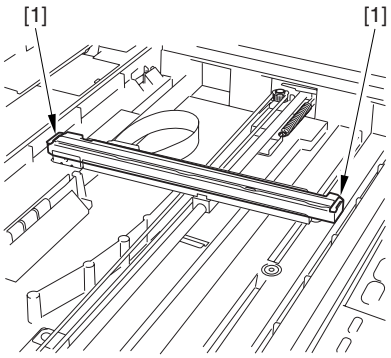
3) Remove the copyboard glass [3].



F-4-31

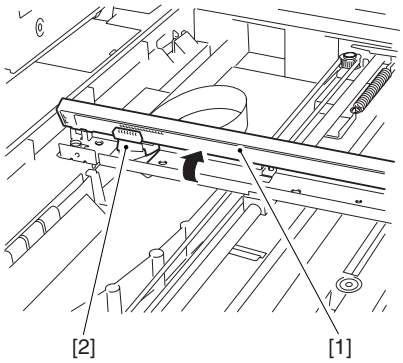
4.2.5.2 Removing the Contact Sensor 0006-3228

1) Remove the 2 spacer [1].



F-4-32

2) Shift up the contact sensor [1], and disconnect the connector [2].
3) Remove the contact sensor [1].



F-4-33

Chapter 5 Laser Exposure

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5.1 Construction

5.1.1 Outline

0006-2874

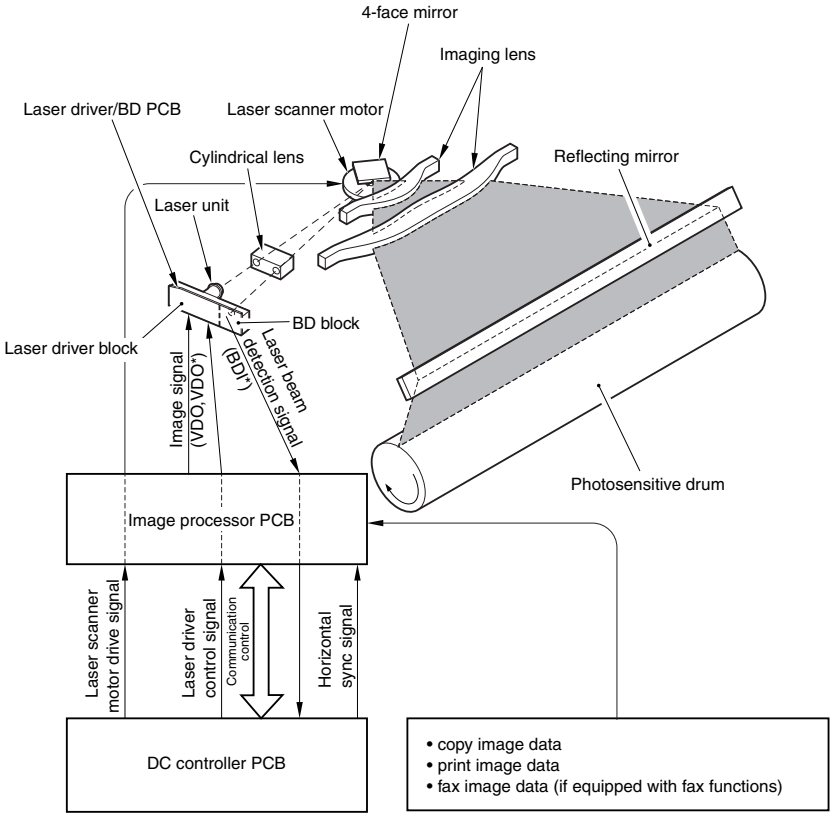
The laser scanner unit consists of the following major components:

- laser unit, which serves as the source of laser beam.
- laser scanner motor, equipped with a 4-face mirror for laser scanning.
- laser driver/BD PCB used to detect laser beam or to control emission of laser beam.

The laser beam generated by the laser unit based on the signals from the DC controller PCB moves through the collimator lens (inside the laser unit) and the cylindrical lens to reach a 4-face polygon mirror rotating at a constant speed.

When reflected by the 4-face polygon mirror, the laser beam moves through the imaging lens, and is bent by the reflecting mirror to reach the photosensitive drum. At this time, the laser beam also is directed to the BD circuit of the laser driver/BD PCB.

As the 4-face polygon mirror rotates at a constant speed, the laser beam scans the surface of the photosensitive drum at a constant speed, thereby removing charges and forming static images.



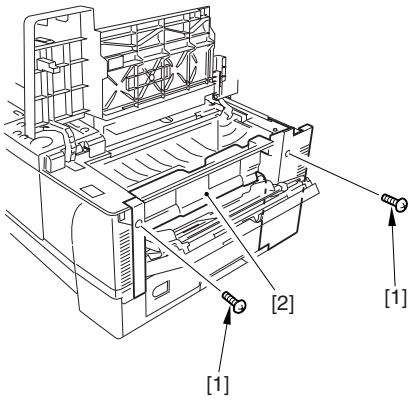
F-5-1

5.2 Parts Replacement Procedure

5.2.1 Laser Scanner Unit

5.2.1.1 Removing the Right Cover 0006-3184

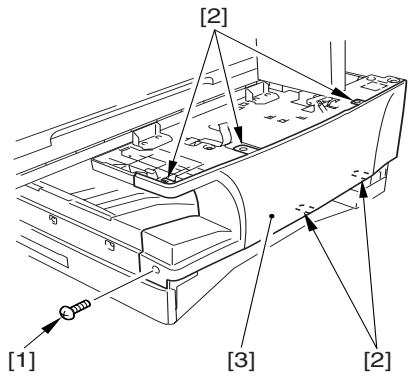
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-5-2

5.2.1.2 Removing the Toner Supply Cover 0006-3185

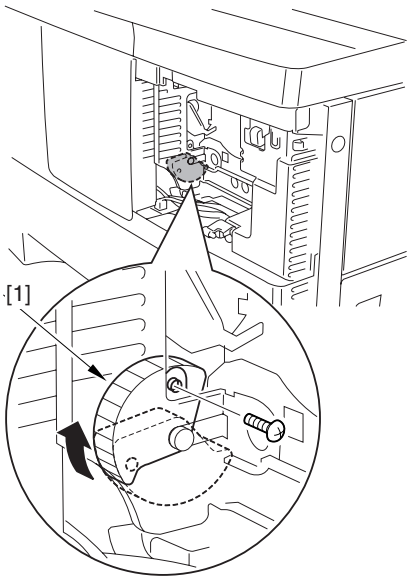
1) Open the toner supply cover [1].
2) Remove the 2 screws [2], and detach the cover [3].
3) Remove the toner supply cover [1].



F-5-3

⚠

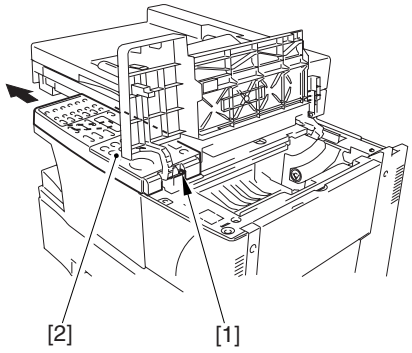
To mount, fit a screw or the like with the gear [1] lifted in place the direction of the arrow as shown to stop; then, attach the toner supply cover, and remove the screw.



F-5-4

5.2.1.3 Removing the Control Panel 0006-3186

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.



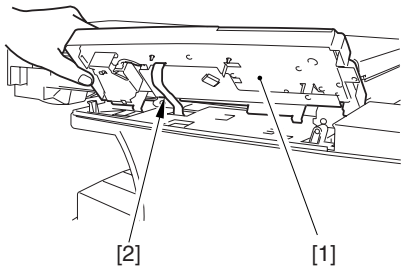
F-5-5

3) Close the cartridge cover.

4) Disconnect the connector [2], and detach the control panel [1].

⚠

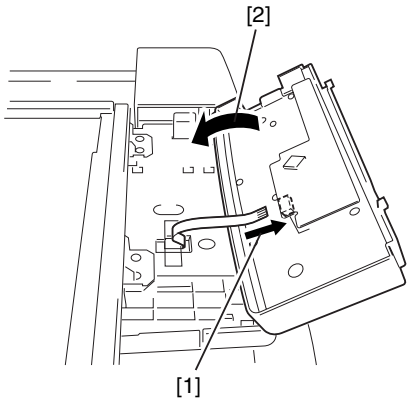
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-5-6

MEMO:

To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



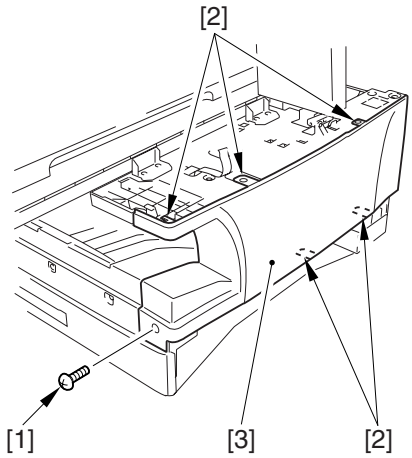
F-5-7

5.2.1.4 Removing the Front Cover 0006-3187

1) Remove the cassette.

2) Remove the screw [1].

3) Free the 5 hooks [2], and detach the front cover [3].

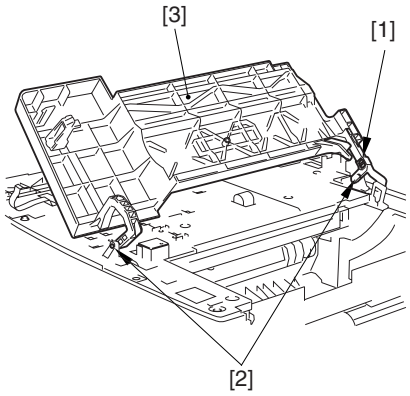


F-5-8

5.2.1.5 Removing the Cartridge Cover 0006-3188

1) Free the hook [1].

2) Remove the 2 ribs [2], and detach the cartridge cover [3].

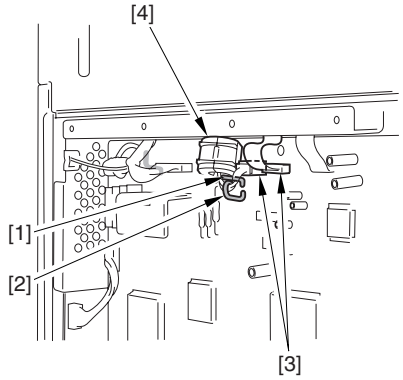


F-5-9

5.2.1.6 Removing the Upper Cover 0006-3190

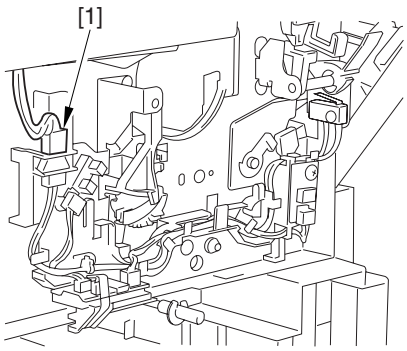
1) Detach the part [1] holding the core and the part [2] holding the cable.

2) Disconnect the 2 connectors [3] and remove the core [4].



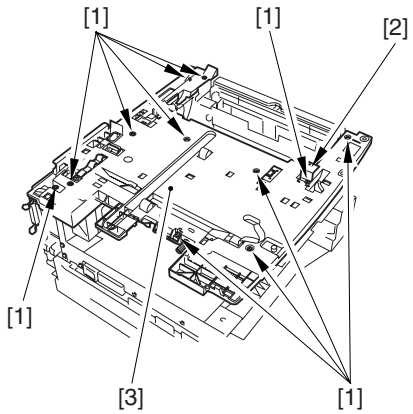
F-5-10

3) Disconnect the connector [1] connecting the leader slide detecting switch and the toner supply cover detecting switch.



F-5-11

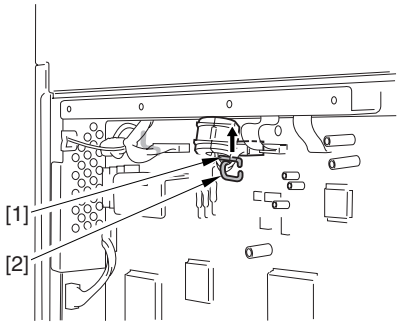
4) Remove the 11 screws [1], and detach the plate [2] and the upper cover [3].



F-5-12

⚠

For installation, fasten the core to the upper position with the part [1] and fix the cable with the part [2].



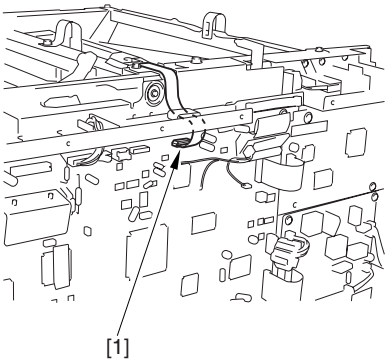
F-5-13

5.2.1.7 Removing the Laser Scanner Unit 0006-3191

⚠

The laser scanner unit can-not be adjusted in the field. Do not disassemble it.

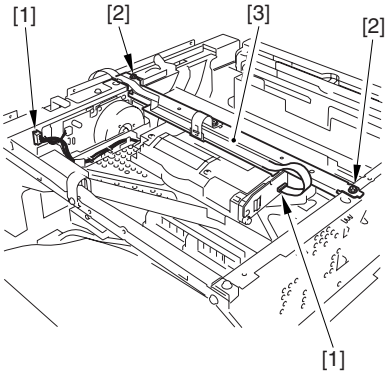
1) Disconnect the connector [1].



F-5-14

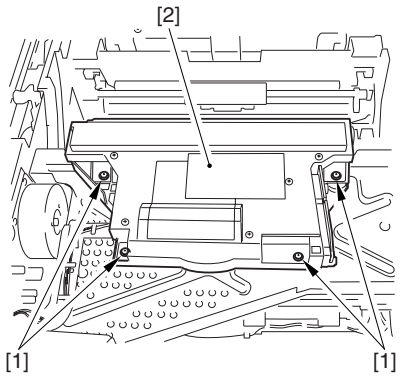
2) Disconnect the 2 connectors [1].

3) Remove the 2 screws [2], and detach the plate [3].



F-5-15

4) Remove the 4 screws [1], and detach the laser scanner unit [2].



F-5-16

Chapter 6 Image Formation

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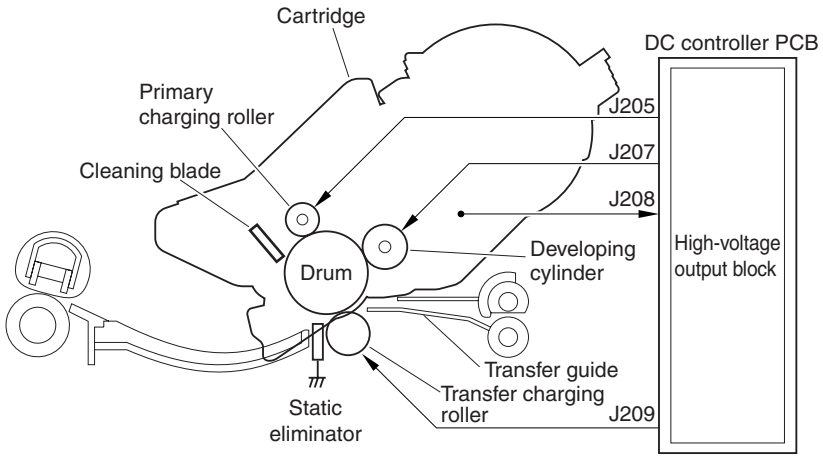
6.1 Construction

6.1.1 Outline

0006-2877

Below illustration shows the construction of the image formation system.
The machine is a cartridge type, in which the core of its image formation components are constructed as a signal entity: photosensitive drum, primary charging roller, developing cylinder, cleaning blade, and toner housing.
The DC controller PCB has a built-in high-voltage output assembly, and generates high voltage for charging at such times as necessary.



F-6-1

6.2 Parts Replacement Procedure

6.2.1 Developing Cylinder

6.2.1.1 Removing the Developing Cylinder 0006-3344

⚠

1. To avoid toner scatter, spread something like newspapers on the floor before work.
2. Do not touch on the surfaces of the drum and the developing cylinder.

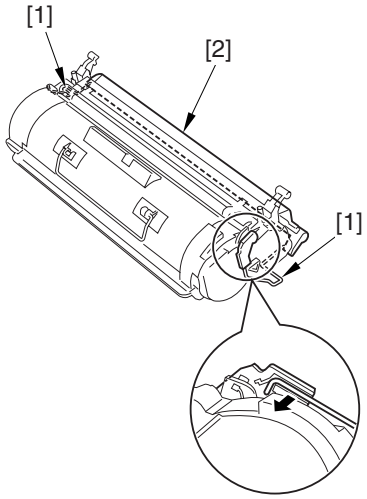
1) Remove the cartridge from the machine.
2) Attach the drum shutter stopper, and remove the drum unit.

⚠

As for the following, care should be taken when attaching or detaching the drum unit.

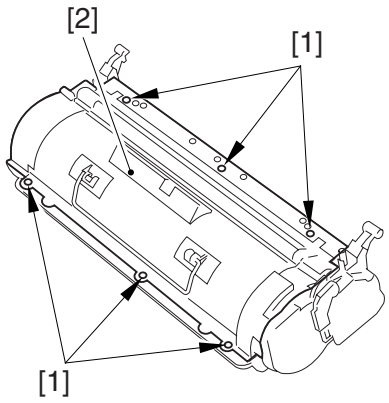
1. Be sure to use the drum shutter stopper as attaching or detaching work.
2. Use the packaging box of the new drum unit if available.
3. After detaching the drum unit,be sure to keep it in a protective bag to prevent damage to the drum surface.

3) Detach the drum shutter stopper.
4) Detach the drum shutter cover stay [1] and remove the drum shutter cover [2].



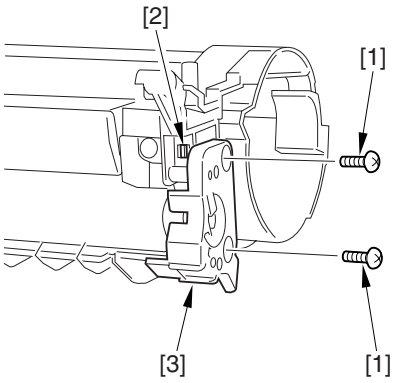
F-6-2

5) Remove the toner bottle from the machine.
6) Remove the 6 screws [1], and remove the cover [2].



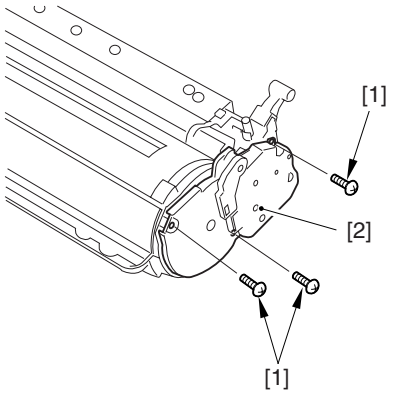
F-6-3

7) Remove the 2 screws [1].
8) Detach the hook [2] and remove the cover [3].



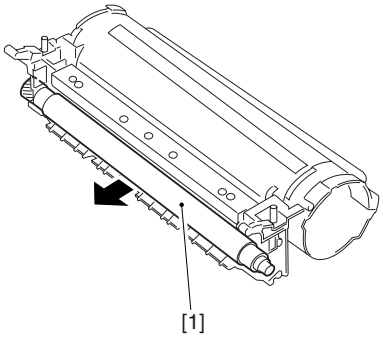
F-6-4

9) Remove the 3 screws [1] and remove the covers [2].



F-6-5

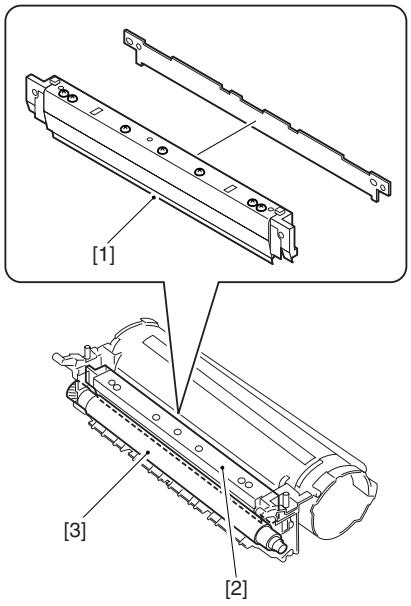
10) Remove the developing cylinder [1].



F-6-6

6.2.1.2 Notes on replacing the Developing Cylinder 0006-3385

1) Before attaching the developing cylinder, use flannel cloth and spread toner thinly on the edge of the developing blade [1] facing to the developing cylinder.



F-6-7

MEMO:
When you replace the developing cylinder [3], do not need to replace the developing blade [2] at the same time.

6.2.2 Developing Blade

6.2.2.1 Removing the Developing Cylinder 0006-3345

⚠

1. To avoid toner scatter, spread something like newspapers on the floor before work.
2. Do not touch on the surfaces of the drum and the developing cylinder.

1) Remove the cartridge from the machine.
2) Attach the drum shutter stopper, and remove the drum unit.

⚠

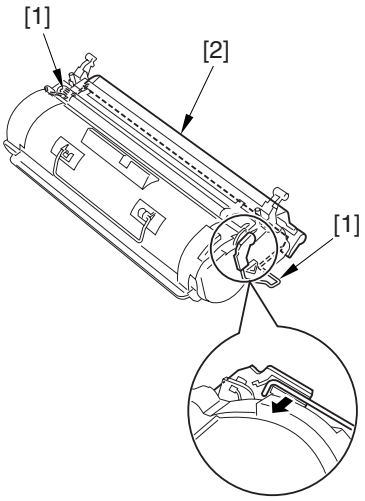
As for the following, care should be taken when attaching or detaching the drum unit.

1. Be sure to use the drum shutter stopper as attaching or detaching work.
2. Use the packaging box of the new drum unit if available.
3. After detaching the drum unit,be sure to keep it in a protective bag to prevent damage to the drum surface.

---

3) Detach the drum shutter stopper.

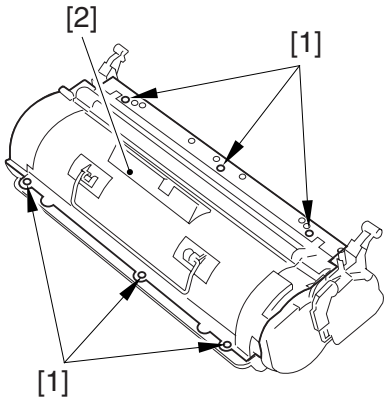
4) Detach the drum shutter cover stay [1] and remove the drum shutter cover [2].



F-6-8

5) Remove the toner bottle from the machine.

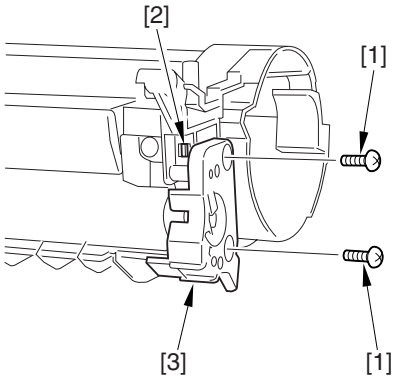
6) Remove the 6 screws [1], and remove the cover [2].



F-6-9

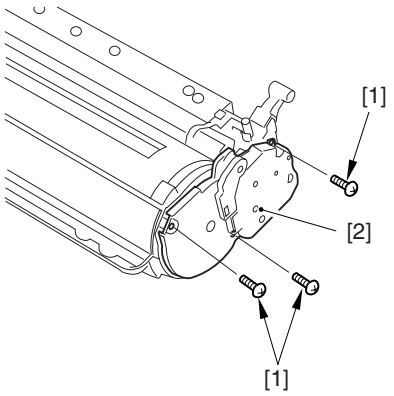
7) Remove the 2 screws [1].

8) Detach the hook [2] and remove the cover [3].



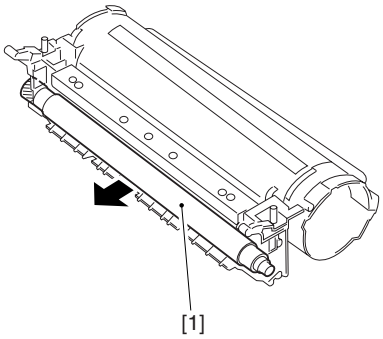
F-6-10

9) Remove the 3 screws [1] and remove the covers [2].



F-6-11

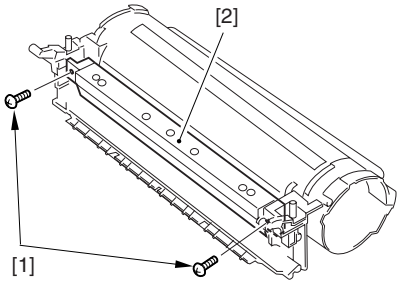
10) Remove the developing cylinder [1].



F-6-12

6.2.2.2 Removing the Developing Blade 0006-3346

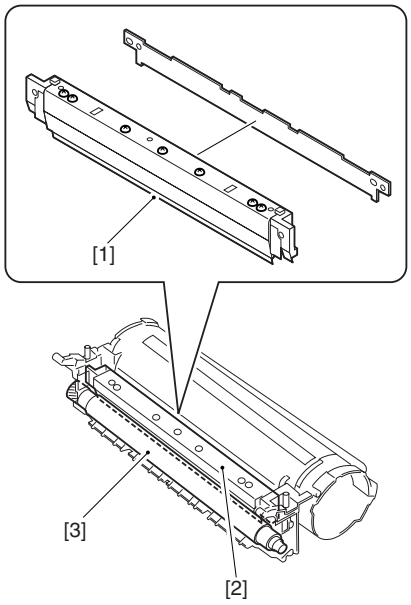
1) Remove the 2 screws [1] and remove the developing blade [2].



F-6-13

6.2.2.3 Notes on replacing the Developing Developing Blade 0006-3389

1) Before attaching the developing cylinder, use flannel cloth and spread toner thinly on the edge of the developing blade [1] facing to the developing cylinder.
2) When you replace the developing blade [2], replace the developing cylinder [3] as well to avoid image blanking.



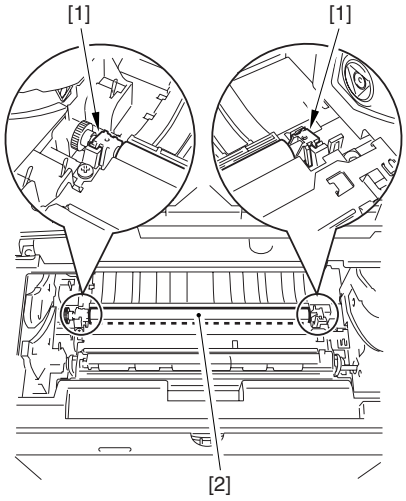
F-6-14

MEMO:
When you replace the developing cylinder [3], do not need to replace the developing blade [2] at the same time.

6.2.3 Transfer Charging Roller

6.2.3.1 Removing the Transfer Charging Roller 0006-3295

1) Slide the reader unit, and open the cartridge cover.
2) Free the 2 hooks [1], and detach the transfer charging roller [2].

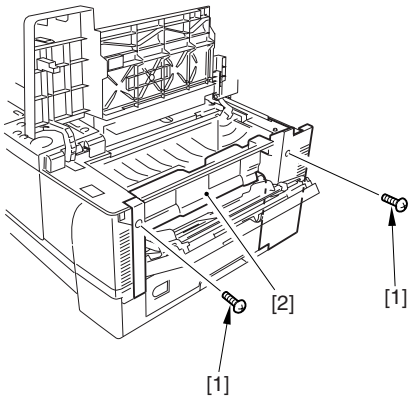


F-6-15

6.2.4 Toner Bottle Sensor

6.2.4.1 Removing the Right Cover 0006-2883

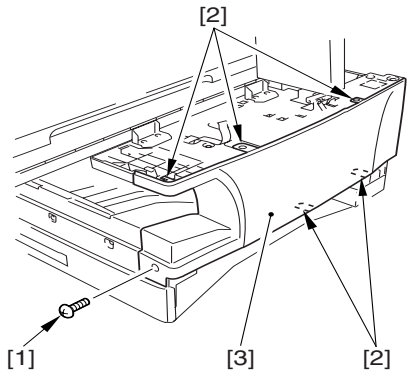
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-6-16

6.2.4.2 Removing the Toner Supply Cover 0006-2884

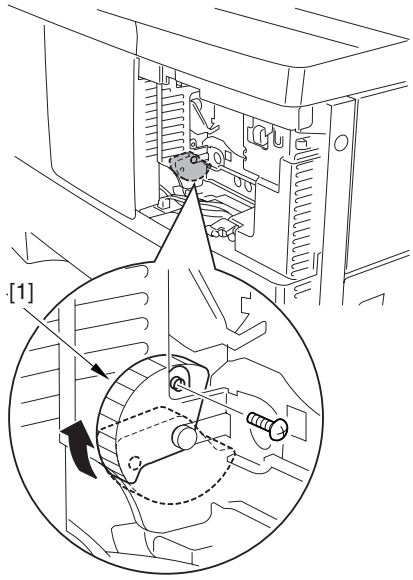
1) Open the toner supply cover [1].
2) Remove the 2 screws [2], and detach the cover [3].
3) Remove the toner supply cover [1].



F-6-17

⚠

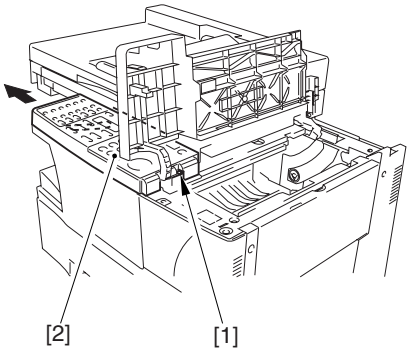
To mount, fit a screw or the like with the gear [1] lifted in place the direction of the arrow as shown to stop; then, attach the toner supply cover, and remove the screw.



F-6-18

6.2.4.3 Removing the Control Panel 0006-3164

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.



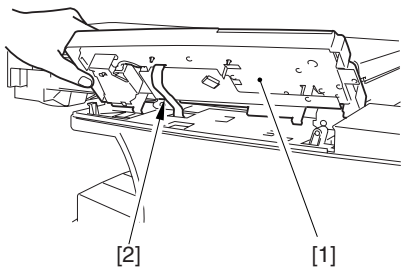
F-6-19

3) Close the cartridge cover.

4) Disconnect the connector [2], and detach the control panel [1].

⚠

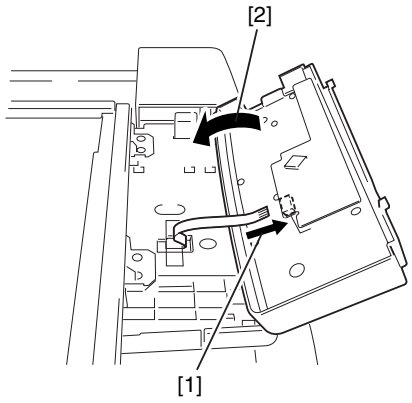
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-6-20

MEMO:

To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



F-6-21

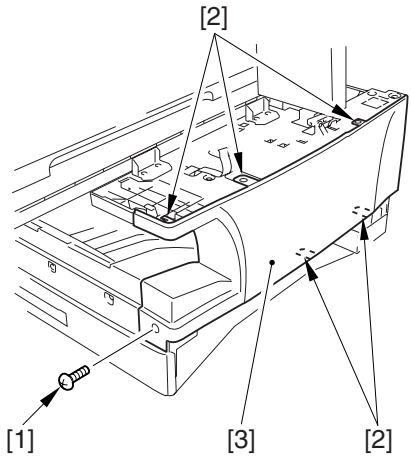
6.2.4.4 Removing the Front Cover

0006-2885

1) Remove the cassette.

2) Remove the screw [1].

3) Free the 5 hooks [2], and detach the front cover [3].



F-6-22

6.2.4.5 Removing the Toner Bottle Sensor

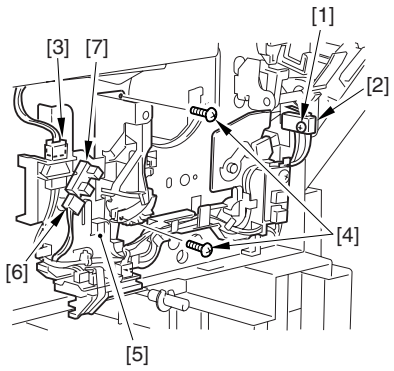
0006-2886

1) Remove the screw [1], and detach the toner supply cover open/closed detecting switch [2] from the body.

2) Disconnect the connector [3].

3) Remove the 2 screws [4], and detach the unit [5].

4) Disconnect the connector [6], and detach the toner bottle sensor [7].



F-6-23

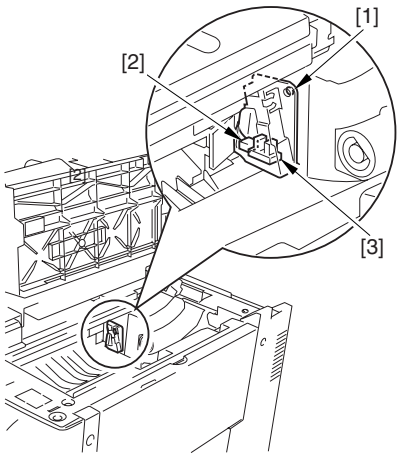
6.2.5 Waste Toner Full Sensor

6.2.5.1 Removing the Waste Toner Full Sensor 0006-2888

1) Open the cartridge cover.
2) Remove the screw [1].
3) Disconnect the connector [2], and detach the waste toner full sensor [3].

⚠

For removal, place a sheet of paper to avoid contact with the transfer charging roller.



F-6-24

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7.1 Construction

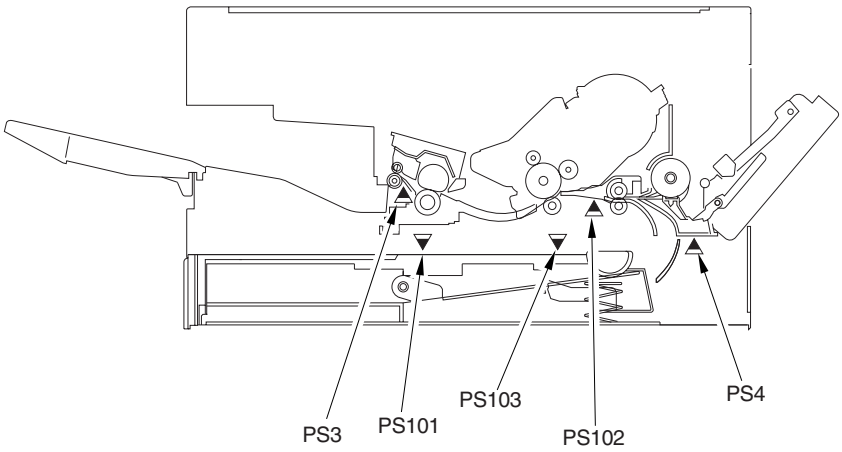
7.1.1 Outline

0006-2880

The machine is not equipped with a paper width detection mechanism. It uses center reference, in which paper moves centered through the pickup/feeding/delivery path.
The source of paper may be from any of two: cassette and manual feed tray. Once picked from the cassette or the manual feed tray, the paper is corrected so that any skew is removed by the registration shutter and is sent as far as the registration roller. Thereafter, the paper is controlled so that its leading edge matches the leading edge of the image on the photosensitive drum by means of the paper leading edge sensor (PS102); it then is moved through the transfer, separation, feeding, and fixing assemblies to reach the delivery tray.
The machine is equipped with 5 sensors to monitor the movement of paper; the names and the functions of these sensors are as follows:

T-7-1

Notation	Name	Function
PS3	Delivery sensor	Detects the state of paper in the delivery assembly.
PS4	Manual feed tray paper sensor	Detects the presence/absence of paper in the manual feed tray.
PS101	LGL paper sensor	Detects paper inside the cassette to see if it is of LGL size.
PS102	Paper leading edge sensor	Detects the leading edge and trailing edge of paper to measure its length. Also, it controls the timing of activation of the laser.
PS103	Cassette paper sensor	Detects the presence/absence of paper in the cassette.



F-7-1

7.2 Detecting Jams

7.2.1 Jam Detection Outline

7.2.1.1 Outline 0006-2933

The machine is equipped with 6 sensors used to detect jams.
The presence/absence of paper is checked with reference to the state of each sensor at such times as stored in the CPU on the DC controller PCB. When the machine detects a jam, it will turn off the main motor (M1) and will indicate a jam message on the LCD.

7.2.1.2 Types of Jams 0006-2934

The machine groups jams into 8 types. When a jam occurs, be sure to remove it, and start over the operation.

7.2.2 Delivery Jams

7.2.2.1 Pickup Delay Jam 0006-2935

After execution of a pickup retry, the paper leading edge sensor (PS102) does not detect the leading edge of paper within a specific period of time, or no paper exists at time of a pickup retry.

7.2.2.2 Delivery Sensor Leading Edge Delay Jam 0006-2963

After the paper leading edge sensor (PS102) has detected the leading edge of paper, the delivery sensor (PS3) does not detect the trailing edge of paper within a specific period of time.

7.2.2.3 Delivery Sensor Trailing Edge Delay Jam 0006-2966

After the delivery sensor (PS3) has detected the leading edge of paper, the delivery sensor (PS3) does not detect the trailing edge of paper within a specific period of time.

7.2.3 Stationary Jams

7.2.3.1 Paper Leading Edge Sensor Stationary Jam 0006-2955

After the paper leading edge sensor (PS102) has detected the leading edge of paper, the paper leading edge sensor (PS102) does not detect the trailing edge of paper within a specific period of time.

7.2.3.2 Delivery Sensor Stationary Jam 0006-2957

- As part of operation after a pickup delay jam, the delivery sensor (PS3) detects the trailing edge of paper; however, the delivery sensor (PS3) once again detects the trailing edge of paper, the laser is forced OFF, and a specific period of time passes.

- As part of operation after a pickup delay jam, the delivery sensor (PS3) detects paper, the laser is forced OFF, and a specific period of time passes.
- At time of cleaning the fixing pressure roller, the trailing edge of paper does not move past the delivery sensor (PS3; i.e., the sensor does not go OFF) within a specific period of time.

7.2.4 Other Jams

7.2.4.1 Fixing Wrap Jam 0006-2959

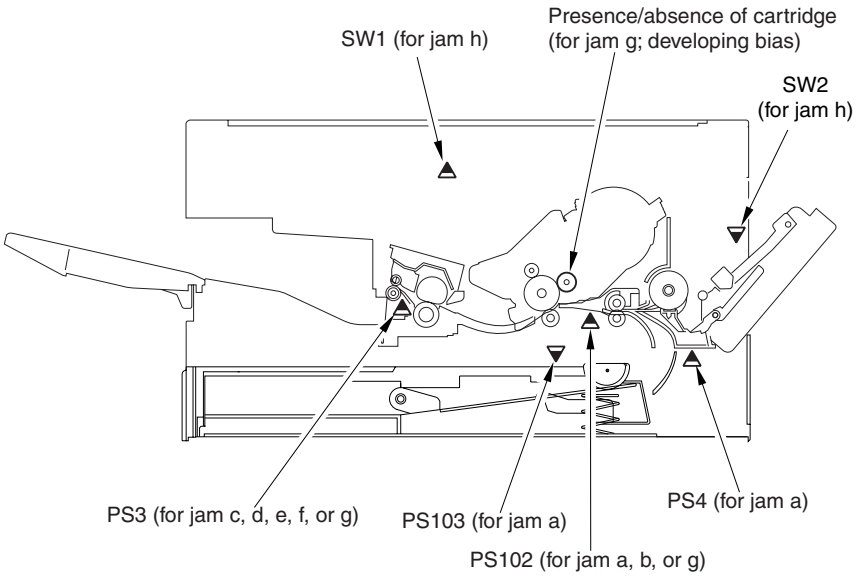
After the delivery sensor (PS3) has detected the leading edge of paper, the delivery sensor (PS3) detects the absence of paper before a specific period of time.

7.2.4.2 Auto Delivery Jam 0007-1202

- When the fixing heater is started, the paper leading edge sensor (PS102) detects the presence of paper.
- The paper group is not known or the paper last subjected to length detection is identified as being LTR or larger; under either of these conditions, the delivery sensor (PS3) detects paper within 1.7 sec after the fixing heater starts.
- The size of the paper last subjected to length detection is identified as being LTR or larger, and the delivery sensor (PS3) detects paper within 1.7 sec after the main motor starts.
- While auto delivery is under way, the machine identifies the absence of a cartridge.

7.2.4.3 Door Open Jam 0006-2970

- During printing, the reader unit slide detecting switch (SW1) has detected movement (sliding) for the reader unit.
- If the toner supply cover open/closed detecting switch (SW2) identifies the toner bottle cover as being open during printing.
- If the toner bottle sensor (PS11) identifies the toner bottle as being displaced during printing.


SW1 (for jam h)
Presence/absence of cartridge
(for jam g; developing bias)
SW2
(for jam h)
PS3 (for jam c, d, e, f, or g)
PS103 (for jam a)
PS102 (for jam a, b, or g)
PS4 (for jam a)

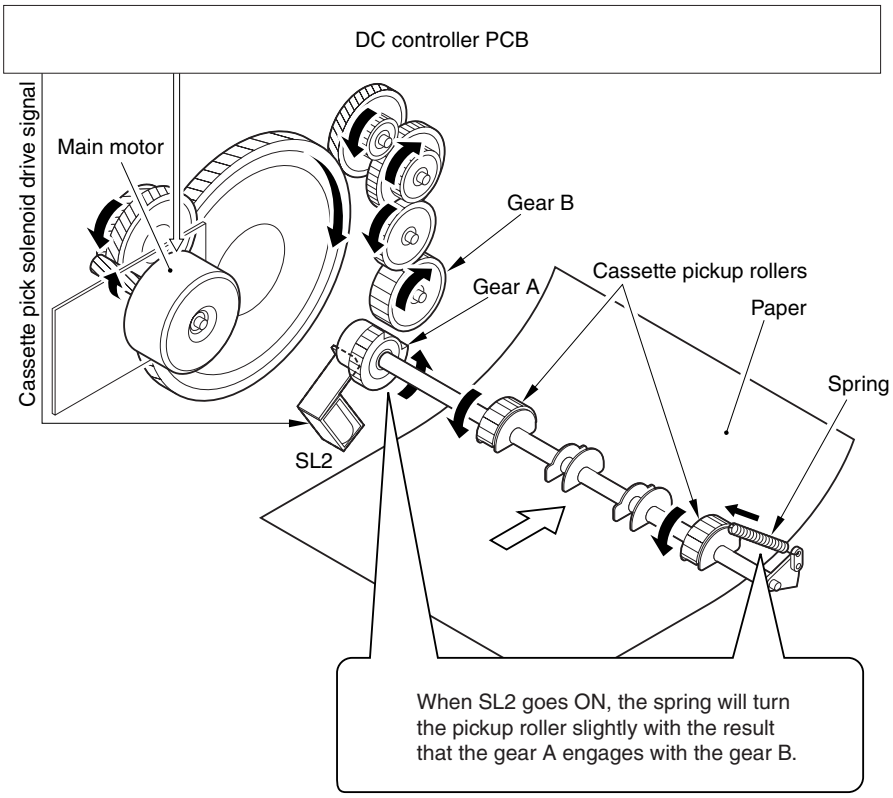
F-7-2

7.3 Cassette Pick-Up Unit

7.3.1 Outline

0006-2887

Paper is picked up from the cassette under the control of the CPU on the DC controller PCB and using the drive of the main motor (M1). When the cassette pickup solenoid (SL2) goes ON, the drive of the main motor (M1) is transmitted to the cassette pickup roller assembly to rotate the cassette pickup roller.
When the cassette pickup roller rotates, a single sheet of paper is separated from the stack by the separation claws of the cassette, and is sent as far as the registration shutter by way of the vertical path roller.


DC controller PCB
Cassette pick solenoid drive signal
Main motor
Gear B
Gear A
Cassette pickup rollers
Paper
Spring
SL2
When SL2 goes ON, the spring will turn the pickup roller slightly with the result that the gear A engages with the gear B.

F-7-3

7.3.2 Retry Pickup

0006-2889

If the paper leading edge sensor (PS102) does not detect paper within a specific period of time after the cassette pickup roller has started to rotate, the machine will start to rotate the cassette pickup roller once again to execute a retry pickup operation.
If the paper leading edge sensor (PS102) still does not detect paper within a specific period of time after the machine executes a retry pickup operation once, the machine will identify the condition as a jam and will indicate a jam message on the LCD.

7.3.3 Detecting the Size of Paper

0006-2890

The machine detects the size of paper in the cassette in any of two ways: LGL size detection and non-LGL size detection.

LGL detection is performed by means of a LGL paper sensor (PS101). The LGL size detection mechanism is used to prevent picking up a subsequent sheet of paper before the trailing edge of paper leaves the cassette, otherwise occurring if the pickup was let to occur at the same time using other sizes when picking up LGL paper.

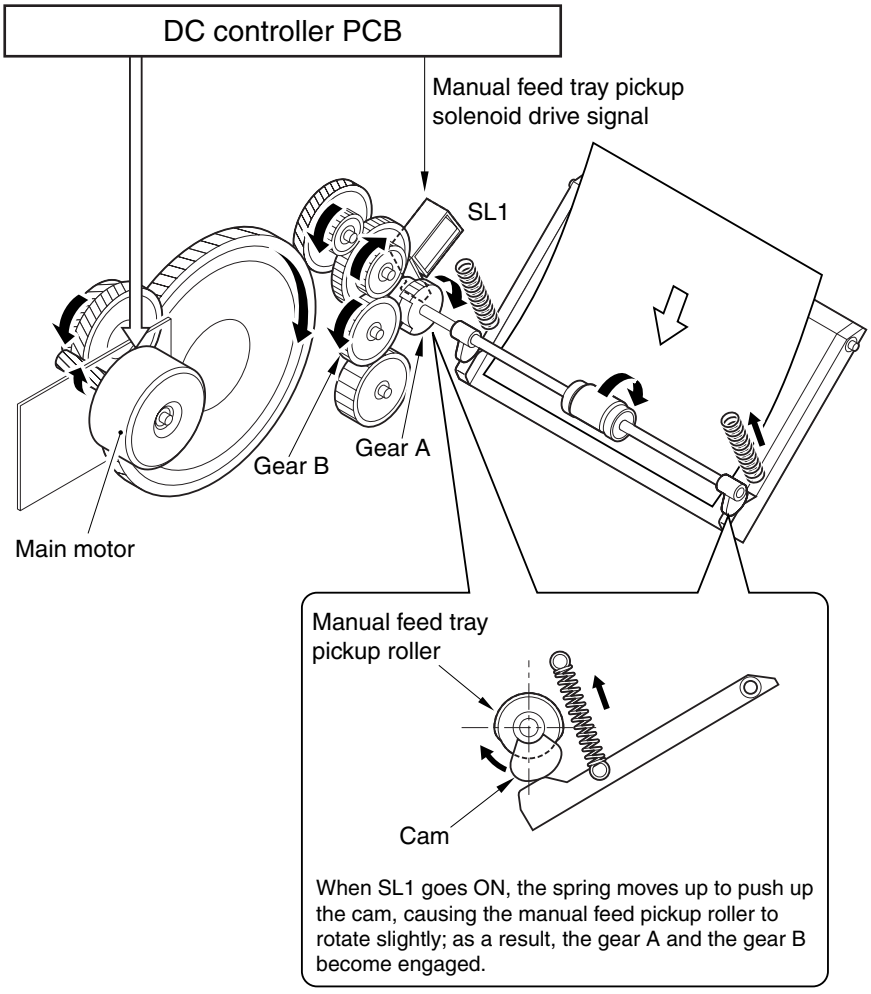
Non-LGL detection is performed using the paper leading edge sensor (PS102) based on the length of paper. In fax mode, if paper of a size different from the size selected from the control panel is placed, the DC controller will identify a paper size mismatch at the end of printing and indicate a message on the LCD.

7.4 Manual Feed Pickup Unit

7.4.1 Outline

0006-2893

Paper is picked up from the manual feed tray under the control of the CPU on the DC controller PCB and using the drive of the main motor (M1). When the manual feed pickup solenoid (SL1) goes ON, the drive of the main motor (M1) is transmitted as far as the manual feed pickup roller assembly to rotate the manual feed pickup roller.
The sheets of paper stacked in the manual feed tray are lifted by the work of a spring and forced against the manual feed pickup roller. Thereafter, a single sheet of paper is separated by the work of the manual feed pickup roller and the separation pad, and is moved as far as the registration shutter.


DC controller PCB
Manual feed tray pickup solenoid drive signal
SL1
Gear B
Gear A
Main motor
Manual feed tray pickup roller
Cam
When SL1 goes ON, the spring moves up to push up the cam, causing the manual feed pickup roller to rotate slightly; as a result, the gear A and the gear B become engaged.

F-7-4

7.4.2 Retry Pickup

0006-2894

If the paper leading edge sensor (PS102) does not detect paper within a specific period of time after the manual feed pickup roller starts to rotate, the machine will rotate the manual feed pickup roller once again to execute a retry pickup operation. If the paper leading edge sensor (PS102) still does not detect the leading edge of paper after the

machine executes a retry pickup operation once, the machine will identify the condition as a jam and will indicate a jam message on the LCD.

7.4.3 Detecting the Size of Paper

0006-2896

The size of paper in the manual feed tray is detected using the paper leading edge sensor (PS102) with reference to the length of paper. In fax mode, if paper of a size different from the size selected from the control panel is placed, the DC controller will identify a paper size mismatch at the end of printing and indicate a message on the LCD.

7.5 Delivery

7.5.1 Outline

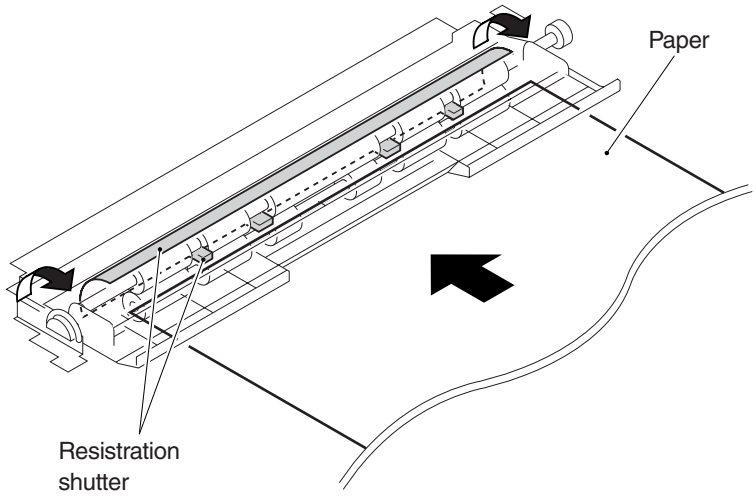
0006-2908

The machine uses the following to feed/deliver paper:

- registration roller
- photosensitive drum
- transfer charging roller
- fixing pressure roller
- delivery roller

The paper moved as far as the registration shutter by the work of the various pick operations is corrected for skew movement when it is butted against the registration roller.

When the paper moves past the registration assembly, the paper leading edge sensor (PS102) detects its leading edge, thereby ensuring that the leading edge of the paper will match the leading edge of the image on the photosensitive drum. Thereafter, the paper is moved past the photosensitive drum and then is moved over the transfer charging roller, fixing pressure roller, and delivery roller.



F-7-5

7.5.2 Auto Delivery Control

0006-2913

The machine drives the main motor (M1) for a specific period of time to feed/delivery roller when the power is turned on, when the reader unit is returned to its initial position, or when it shifts from ESS mode, in addition to the following:

a. after starting the main motor (M1), the paper leading edge sensor (PS102) detects paper.

b. the size of the paper delivered last is B5 or smaller, and the delivery sensor (PS3) detects paper after the main motor (M1) is started.

7.5.3 Reducing the Copying Speed

0006-2922

The machine is not equipped with a paper width detection mechanism; for this reason, if paper with a limited width is used in continuous printing, the ends of the fixing heater would overheat. To prevent overheating, the machine switches among 3 copying speeds with reference to the readings of the sub thermistor.

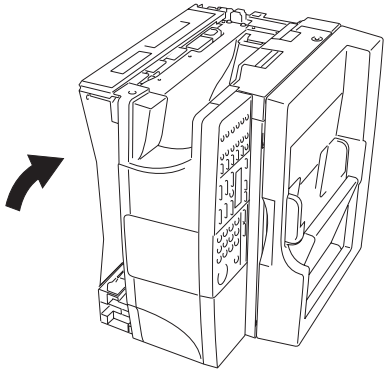
1. Normally, the machine reduces the speed to 4 ppm when the reading of the sub thermistor reaches 245 deg C/473 deg F or higher.
2. The machine will further reduce the copying speed to 3 ppm if the reading of the sub thermistor reaches 255 deg C/491 deg F or higher after it has reduced it to 4 ppm.
3. The machine will further reduce the copying speed to 2 ppm if the reading of the sub thermistor reaches 260 deg C/500 deg F or higher after it has reduced it to 3 ppm.

7.6 Parts Replacement Procedure

7.6.1 Pickup Roller

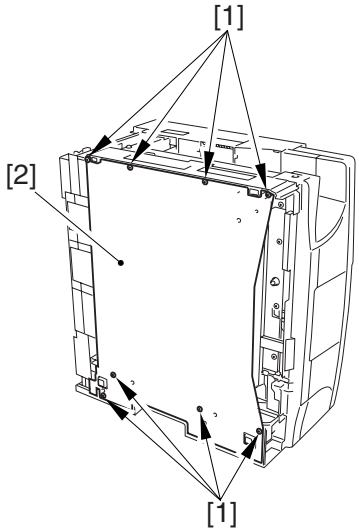
7.6.1.1 Removing the Cassette Pickup Roller 0006-3392

1) Remove the copyboard cover. (If the machine has the ADF, the ADF need not be removed.)
2) Remove the cassette.
3) Place the machine so that its pickup side is at the bottom.



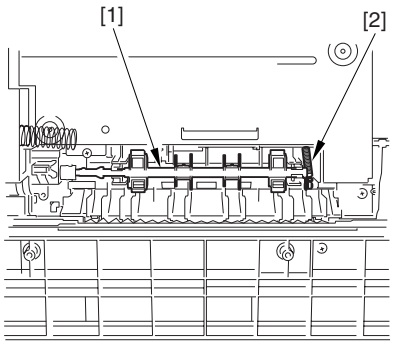
F-7-6

4) Remove the 8 screws [1], and detach the bottom plate [2].



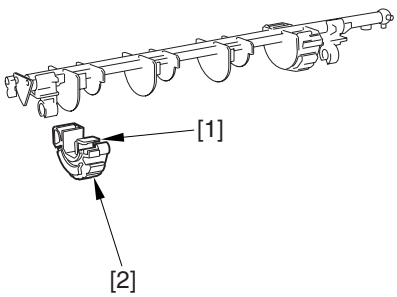
F-7-7

5) Remove the spring [1], and detach the cassette pickup roller unit [2].



F-7-8

6) Free the hook [1], and detach the cassette pickup roller [2].

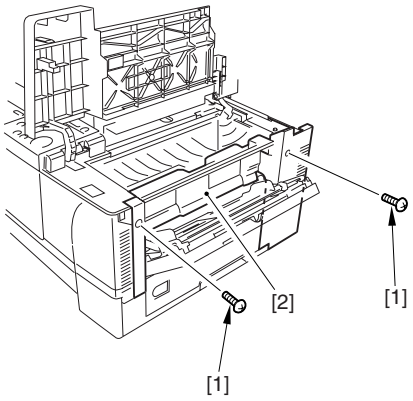


F-7-9

7.6.2 Separation Pad

7.6.2.1 Removing the Right Cover 0006-3326

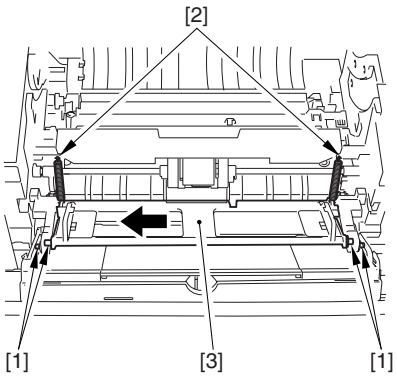
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-7-10

7.6.2.2 Removing the Manual Feed Tray (upper) 0006-3342

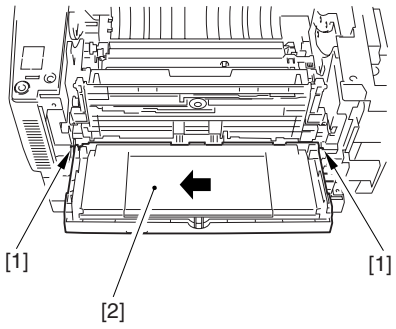
1) Remove the 4 ribs [1].
2) Remove the 2 springs [2], and slide the manual feed tray (upper) [3] to detach.



F-7-11

7.6.2.3 Removing the Manual Feed Tray (lower) 0006-3343

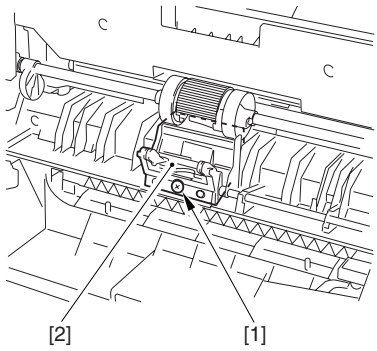
1) Remove the 2 ribs [1], and slide the manual feed tray (lower) [2] to detach.



F-7-12

7.6.2.4 Removing the Separation Pad 0006-3337

1) Open the right door.
2) Remove the screw [1], and detach the separation pad [2].

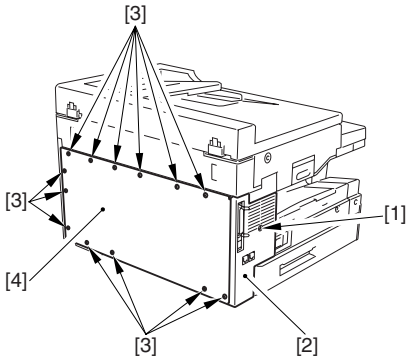


F-7-13

7.6.3 Cassette Pickup Solenoid

7.6.3.1 Removing the Rear Cover 0006-3296

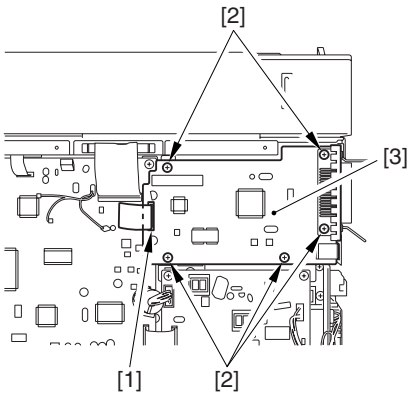
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-7-14

7.6.3.2 Removing the Printer Controller PCB 0006-3297

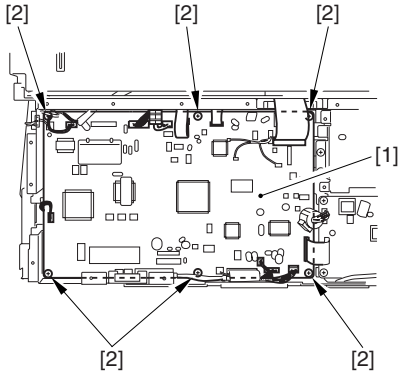
1) Disconnect the connector [1].
2) Remove the 5 screws [2], and detach the printer controller PCB [3].



F-7-15

7.6.3.3 Removing the Image Processor PCB 0006-3300

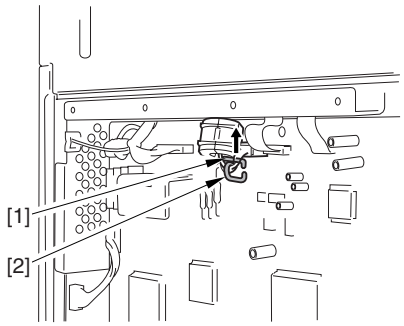
1) Remove the retainer for the flexible cable used to connect the analog processor PCB and the image processor PCB.
2) Remove the core, and disconnect all connectors from the image processor PCB [1].
3) Remove the 6 screws [2], and detach the image processor PCB [1].



F-7-16

⚠

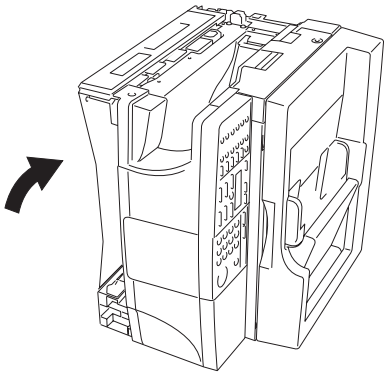
For installation, fasten the core to the upper position with the part [1] and fix the cable with the part [2].



F-7-17

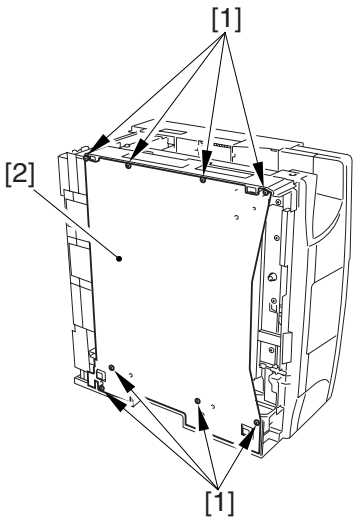
7.6.3.4 Removing the Cassette Pickup Solenoid 0006-3302

1) Remove the copyboard cover. (If the machine has the ADF, the ADF need not be removed.)
2) Remove the cassette.
3) Place the machine so that its pickup side is at the bottom.



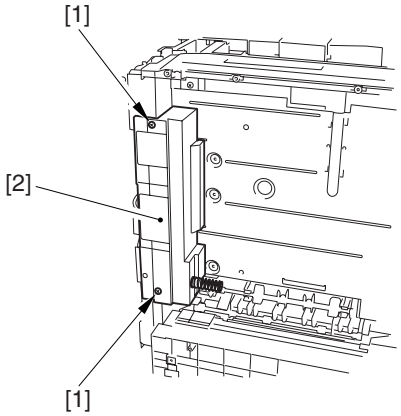
F-7-18

4) Remove the 8 screws [1], and detach the bottom plate [2].



F-7-19

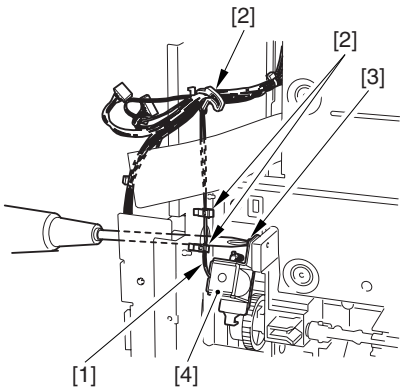
5) Remove the 2 screws [1], and detach the cassette rear cover [2].



F-7-20

6) Free the harness [1] from the harness guide [2].

7) Remove the screw [3], and detach the cassette pickup solenoid [4].



F-7-21

7.6.4 Manual Feed (Upper)

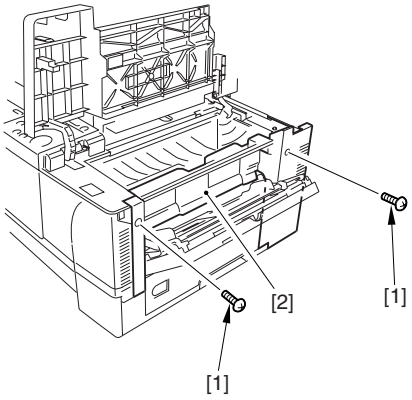
7.6.4.1 Removing the Right Cover

0006-3313

1) Slide the reader unit, and open the cartridge cover.

2) Open the manual feed tray.

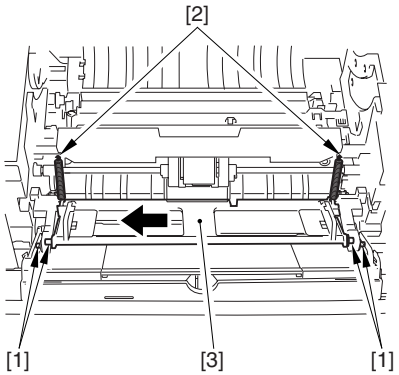
3) Remove the 2 screws [1], and detach the right cover [2].



F-7-22

7.6.4.2 Removing the Manual Feed Tray (upper) 0006-3314

1) Remove the 4 ribs [1].
2) Remove the 2 springs [2], and slide the manual feed tray (upper) [3] to detach.

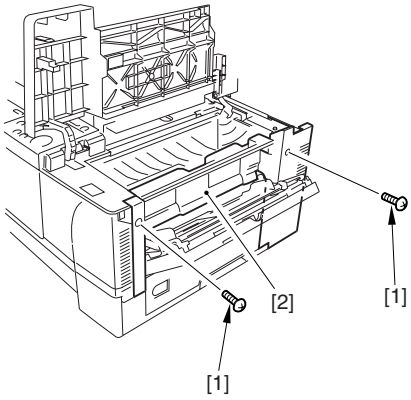


F-7-23

7.6.5 Manual Feed (Lower)

7.6.5.1 Removing the Right Cover 0006-3315

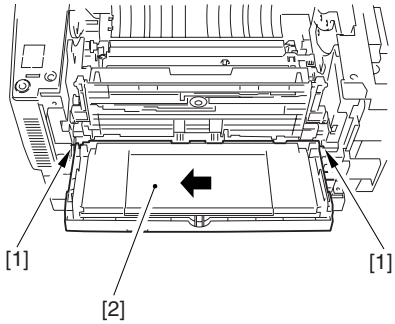
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-7-24

7.6.5.2 Removing the Manual Feed Tray (lower) 0006-3316

1) Remove the 2 ribs [1], and slide the manual feed tray (lower) [2] to detach.

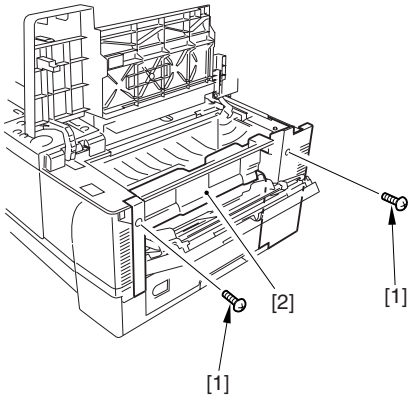


F-7-25

7.6.6 Manual Pickup Roller

7.6.6.1 Removing the Right Cover 0006-3321

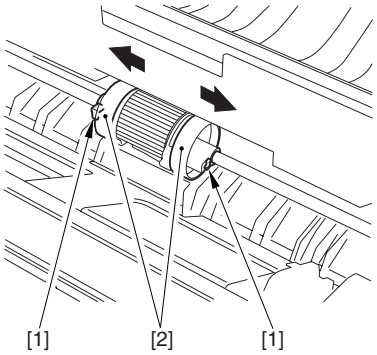
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-7-26

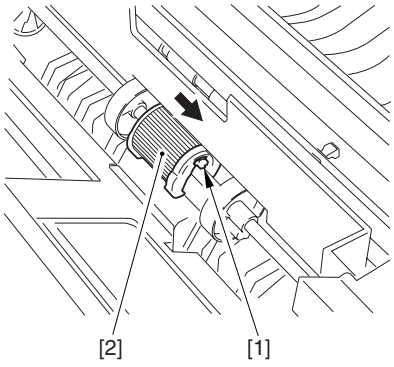
7.6.6.2 Removing the Manual Feed Pickup Roller 0006-3322

1) Free the 2 hooks [1], and slide the 2 manual feed pickup roller retainers [2] to the left and right.



F-7-27

2) Free the hook [1], and slide the manual feed pickup roller [2] to the right to detach.

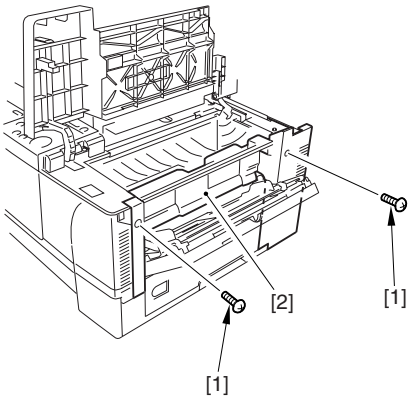


F-7-28

7.6.7 Manual Feed Tray sensor

7.6.7.1 Removing the Right Cover 0006-3803

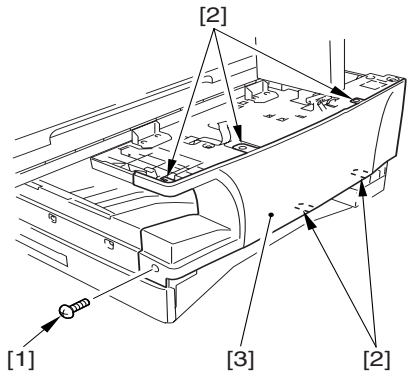
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-7-29

7.6.7.2 Removing the Toner Supply Cover 0006-3804

1) Open the toner supply cover [1].
2) Remove the 2 screws [2], and detach the cover [3].
3) Remove the toner supply cover [1].

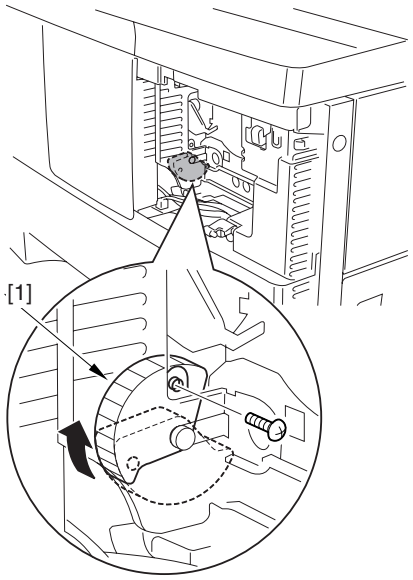


F-7-30

⚠

To mount, fit a screw or the like with the gear [1] lifted

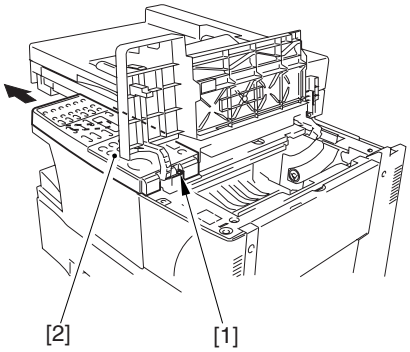
in place the direction of the arrow as shown to stop; then, attach the toner supply cover, and remove the screw.



F-7-31

7.6.7.3 Removing the Control Panel 0006-3806

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.

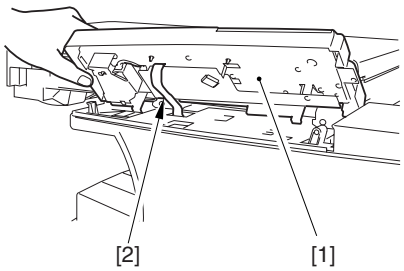


F-7-32

3) Close the cartridge cover.
4) Disconnect the connector [2], and detach the control panel [1].

⚠

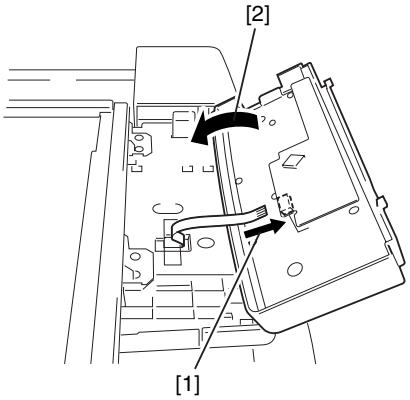
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-7-33

MEMO:

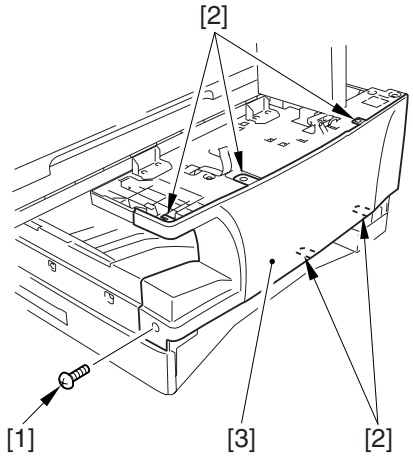
To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



F-7-34

7.6.7.4 Removing the Front Cover 0006-3808

1) Remove the cassette.
2) Remove the screw [1].
3) Free the 5 hooks [2], and detach the front cover [3].

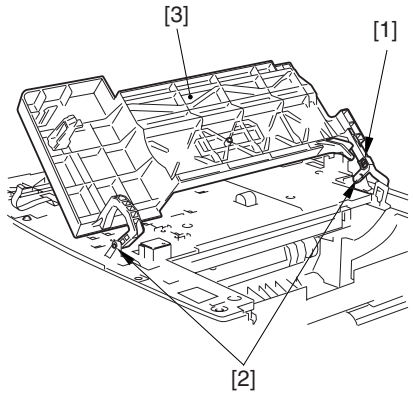


F-7-35

7.6.7.5 Removing the Cartridge Cover

0006-3809

1) Free the hook [1].
2) Remove the 2 ribs [2], and detach the cartridge cover [3].

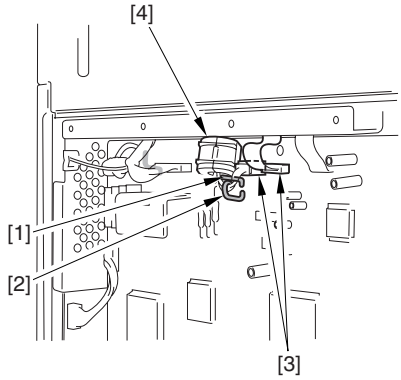


F-7-36

7.6.7.6 Removing the Upper Cover

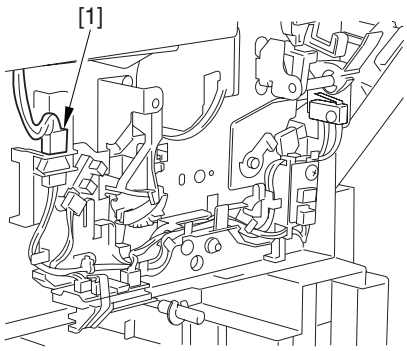
0006-3810

1) Detach the part [1] holding the core and the part [2] holding the cable.
2) Disconnect the 2 connectors [3] and remove the core [4].



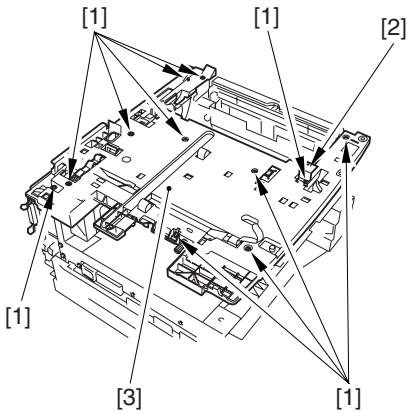
F-7-37

3) Disconnect the connector [1] connecting the leader slide detecting switch and the toner supply cover detecting switch.



F-7-38

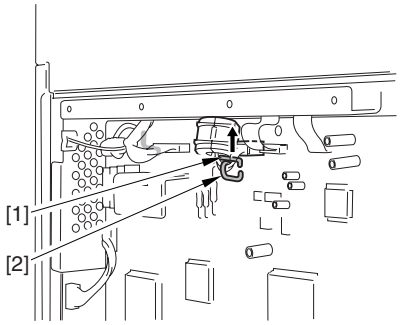
4) Remove the 11 screws [1], and detach the plate [2] and the upper cover [3].



F-7-39

⚠

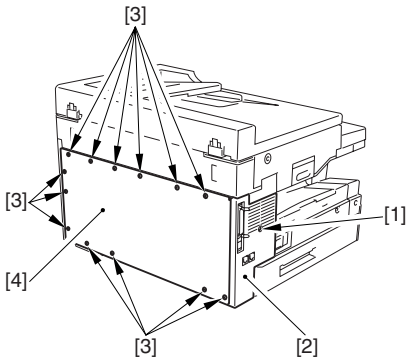
For installation, fasten the core to the upper position with the part [1] and fix the cable with the part [2].



F-7-40

7.6.7.7 Removing the Rear Cover 0006-3812

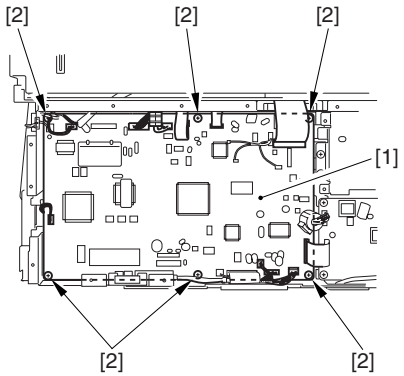
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-7-41

7.6.7.8 Removing the Image Processor PCB 0006-3814

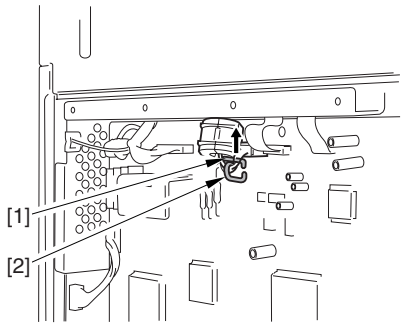
1) Remove the retainer for the flexible cable used to connect the analog processor PCB and the image processor PCB.
2) Remove the core, and disconnect all connectors from the image processor PCB [1].
3) Remove the 6 screws [2], and detach the image processor PCB [1].



F-7-42

⚠

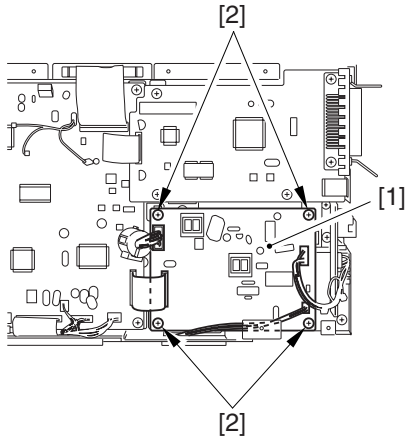
For installation, fasten the core to the upper position with the part [1] and fix the cable with the part [2].



F-7-43

7.6.7.9 Removing the NCU PCB (if equipped with fax functions) 0006-3816

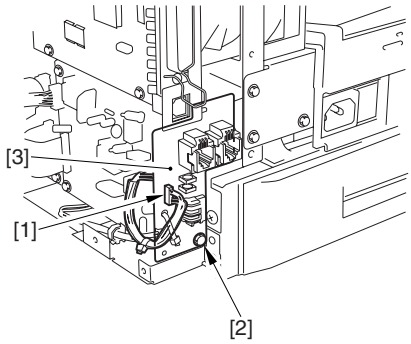
1) Disconnect all connectors form the NCU PCB.
2) Remove the 4 screws [2], and detach the NCU PCB [1].



F-7-44

7.6.7.10 Removing the Modular Jack PCB 0006-3817

1) Disconnect the connector [1].
2) Remove the screw [2], and detach the modular jack PCB [3].



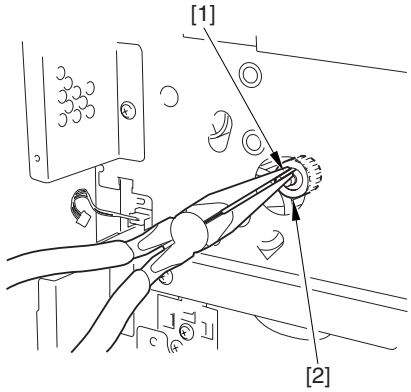
F-7-45

7.6.7.11 Removing the Main Motor Unit 0006-3820

1) Pick the hook [1] with long nose pliers or the like, and detach the registration roller gear [2].

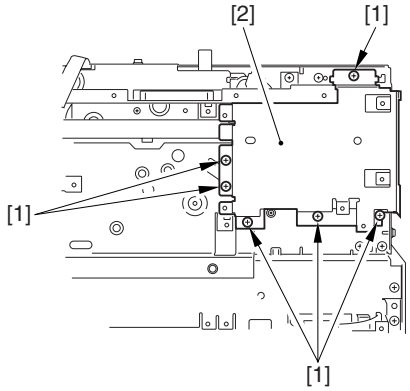
⚠

Take care not to break the claw when removing the gear.



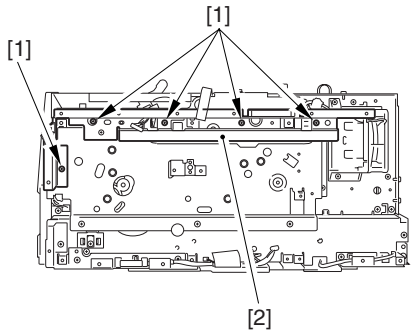
F-7-46

2) Remove the 6 screws [1], and detach the plate [2].



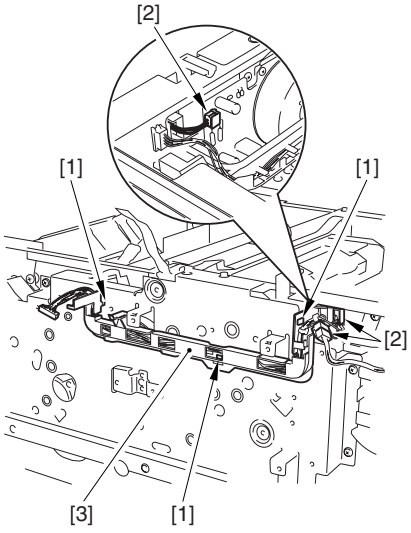
F-7-47

5) Remove the 5 screws [1], and detach the plate [2].



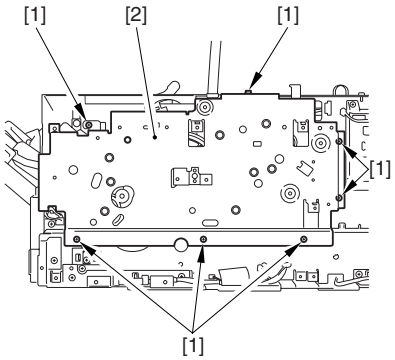
F-7-48

4) Free the 3 hooks [1].
5) Disconnect the 3 connectors [2], and detach the harness [3].



F-7-49

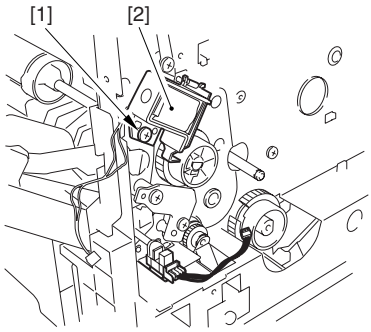
6) Remove the 7 screws [1], and detach the main motor unit [2].



F-7-50

7.6.7.12 Removing the Manual Feed Pickup Solenoid 0006-3821

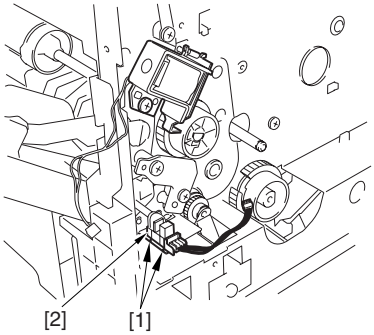
1) Remove the screw [1], and detach the manual feed pickup solenoid [2].



F-7-51

7.6.7.13 Removing the Manual Feed Tray Paper Sensor 0006-3823

1) Free the 2 hooks [1], and detach the manual feed tray paper sensor [2].

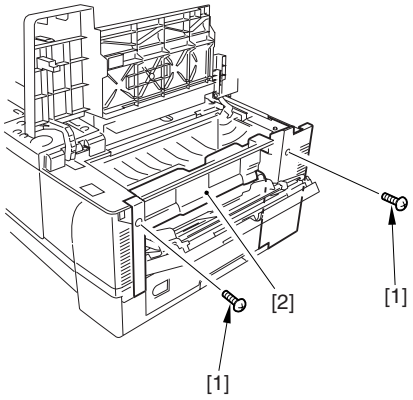


F-7-52

7.6.8 Manual Feed Pickup Solenoid

7.6.8.1 Removing the Right Cover 0006-3425

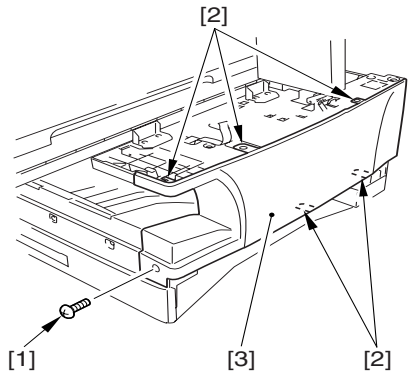
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-7-53

7.6.8.2 Removing the Toner Supply Cover 0006-3426

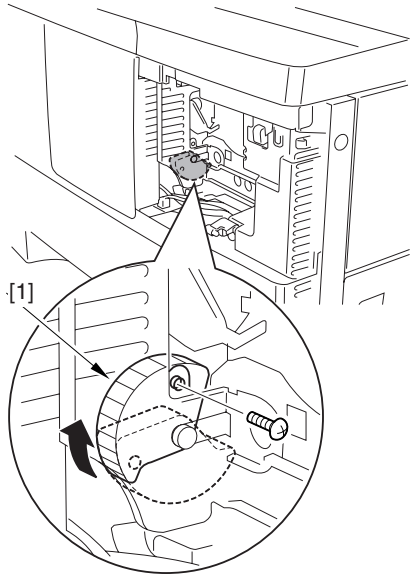
1) Open the toner supply cover [1].
2) Remove the 2 screws [2], and detach the cover [3].
3) Remove the toner supply cover [1].



F-7-54

⚠

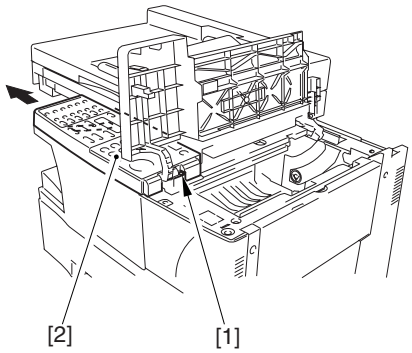
To mount, fit a screw or the like with the gear [1] lifted in place the direction of the arrow as shown to stop; then, attach the toner supply cover, and remove the screw.



F-7-55

7.6.8.3 Removing the Control Panel 0006-3427

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.



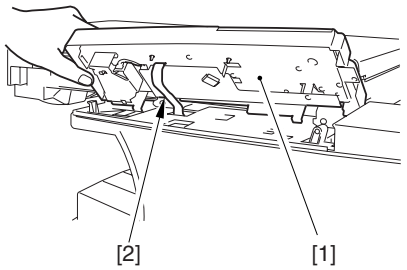
F-7-56

3) Close the cartridge cover.
4) Disconnect the connector [2], and detach the control panel [1].

⚠

To prevent damage to the flexible cable, be sure to lift

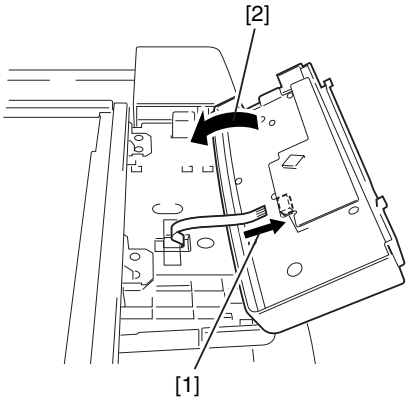
the control panel slightly as shown when disconnecting the connector [2].



F-7-57

MEMO:

To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.

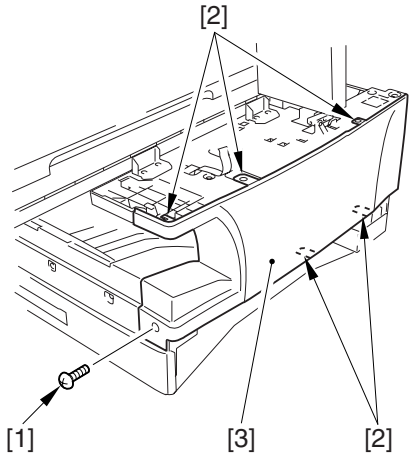


F-7-58

7.6.8.4 Removing the Front Cover

0006-3429

1) Remove the cassette.
2) Remove the screw [1].
3) Free the 5 hooks [2], and detach the front cover [3].

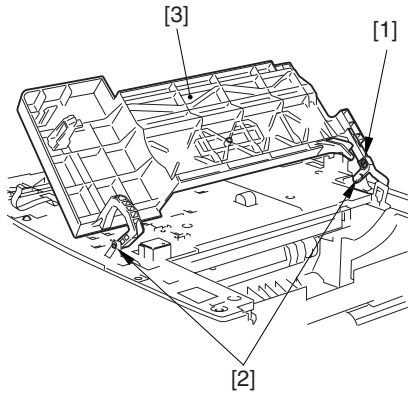


F-7-59

7.6.8.5 Removing the Cartridge Cover

0006-3432

1) Free the hook [1].
2) Remove the 2 ribs [2], and detach the cartridge cover [3].

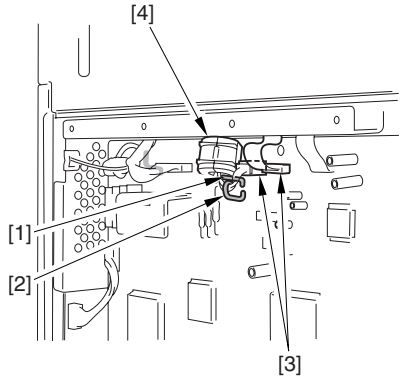


F-7-60

7.6.8.6 Removing the Upper Cover

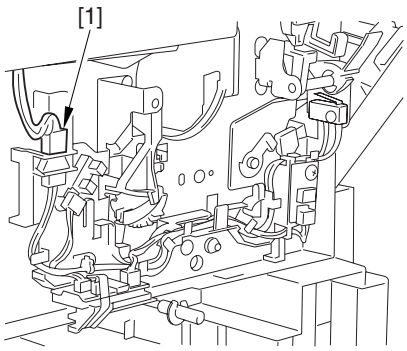
0006-3434

1) Detach the part [1] holding the core and the part [2] holding the cable.
2) Disconnect the 2 connectors [3] and remove the core [4].



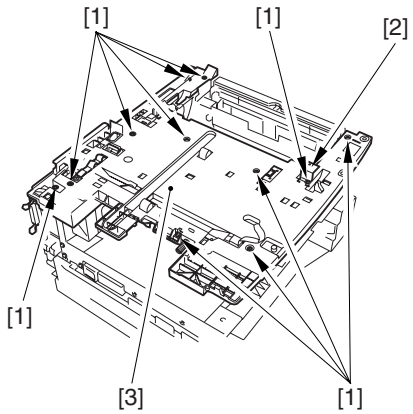
F-7-61

3) Disconnect the connector [1] connecting the leader slide detecting switch and the toner supply cover detecting switch.



F-7-62

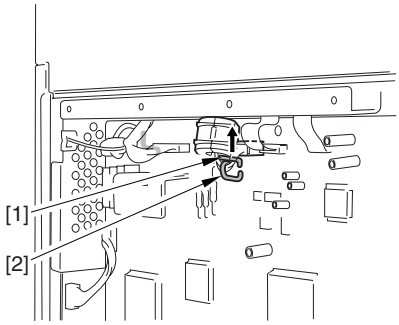
4) Remove the 11 screws [1], and detach the plate [2] and the upper cover [3].



F-7-63

⚠

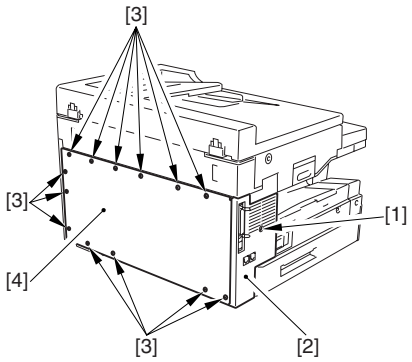
For installation, fasten the core to the upper position with the part [1] and fix the cable with the part [2].



F-7-64

7.6.8.7 Removing the Rear Cover 0006-3437

1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].

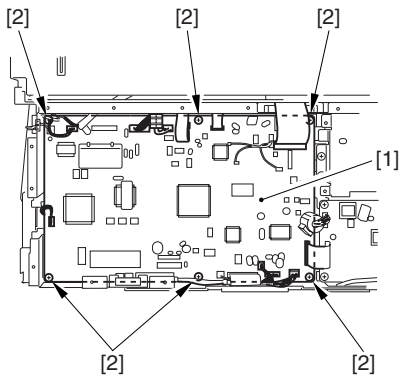


F-7-65

7.6.8.8 Removing the Image Processor PCB 0006-3444

1) Remove the retainer for the flexible cable used to connect the analog processor PCB and the image processor PCB.
2) Remove the core, and disconnect all connectors from the image processor PCB [1].
3) Remove the 6 screws [2], and detach the image

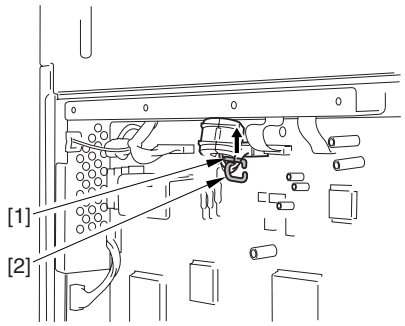
processor PCB [1].



F-7-66

⚠

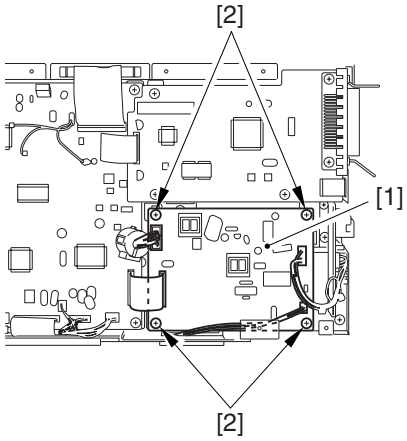
For installation, fasten the core to the upper position with the part [1] and fix the cable with the part [2].



F-7-67

7.6.8.9 Removing the NCU PCB (if equipped with fax functions) 0006-3445

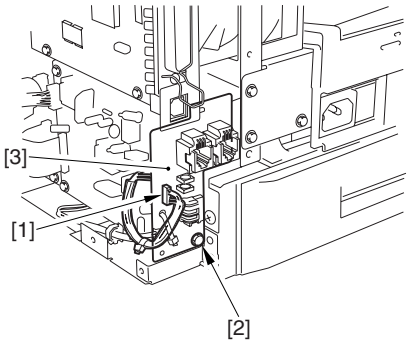
1) Disconnect all connectors form the NCU PCB.
2) Remove the 4 screws [2], and detach the NCU PCB [1].



F-7-68

7.6.8.10 Removing the Modular Jack PCB 0006-3448

1) Disconnect the connector [1].
2) Remove the screw [2], and detach the modular jack PCB [3].



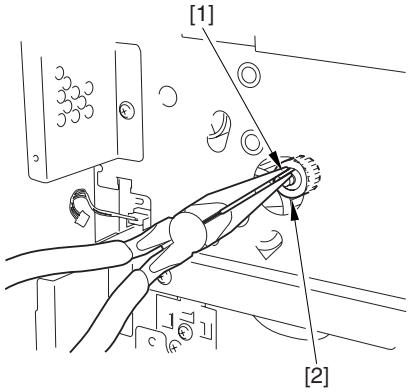
F-7-69

7.6.8.11 Removing the Main Motor Unit 0006-3452

1) Pick the hook [1] with long nose pliers or the like, and detach the registration roller gear [2].

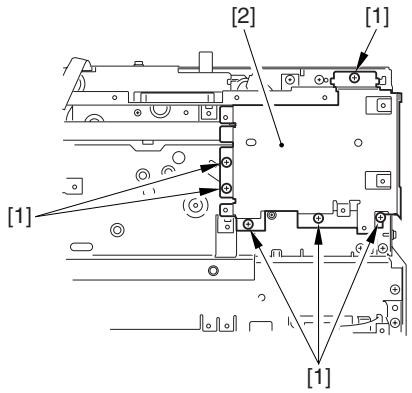
⚠

Take care not to break the claw when removing the gear.



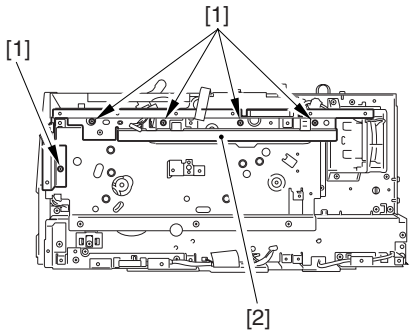
F-7-70

2) Remove the 6 screws [1], and detach the plate [2].



F-7-71

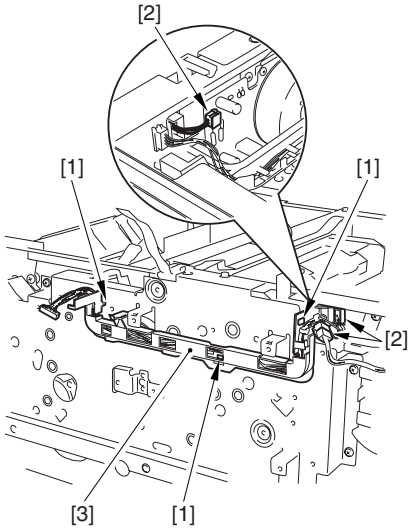
5) Remove the 5 screws [1], and detach the plate [2].



F-7-72

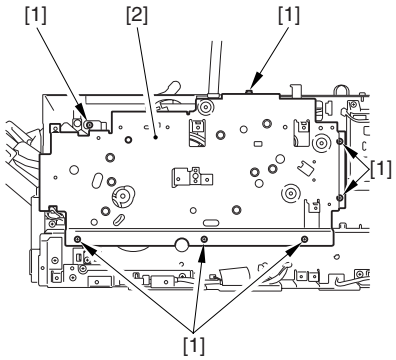
4) Free the 3 hooks [1].

5) Disconnect the 3 connectors [2], and detach the harness [3].



F-7-73

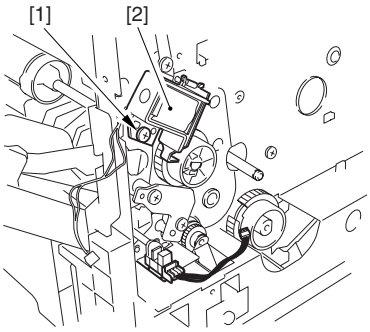
6) Remove the 7 screws [1], and detach the main motor unit [2].



F-7-74

7.6.8.12 Removing the Manual Feed Pickup Solenoid 0006-3456

1) Remove the screw [1], and detach the manual feed pickup solenoid [2].

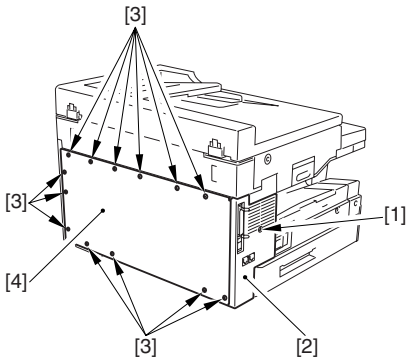


F-7-75

7.6.9 Registration Roller Unit

7.6.9.1 Removing the Rear Cover 0006-3472

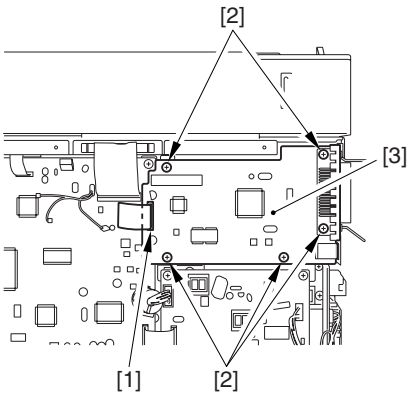
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-7-76

7.6.9.2 Removing the Printer Controller PCB 0006-3473

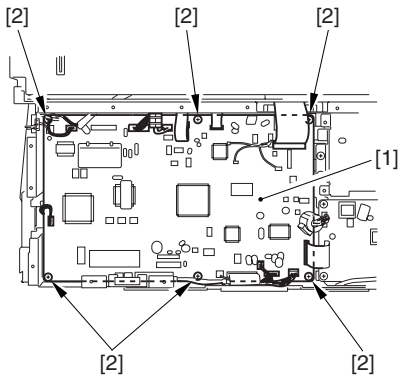
1) Disconnect the connector [1].
2) Remove the 5 screws [2], and detach the printer controller PCB [3].



F-7-77

7.6.9.3 Removing the Image Processor PCB 0006-3474

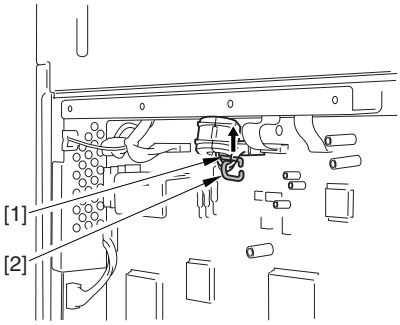
1) Remove the retainer for the flexible cable used to connect the analog processor PCB and the image processor PCB.
2) Remove the core, and disconnect all connectors from the image processor PCB [1].
3) Remove the 6 screws [2], and detach the image processor PCB [1].



F-7-78

⚠

For installation, fasten the core to the upper position with the part [1] and fix the cable with the part [2].



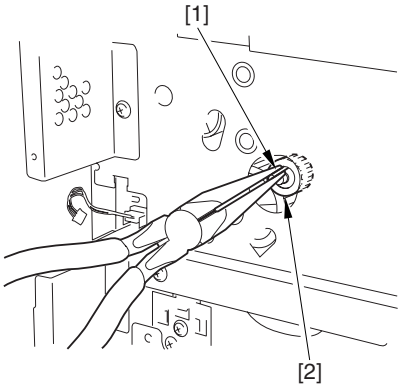
F-7-79

7.6.9.4 Removing the Registration Roller Unit 0006-3475

1) Using long nose pliers or the like, pick the hook [1], and detach the registration roller gear [2].

⚠

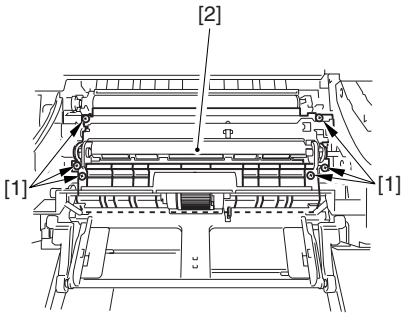
When removing the gear, be sure to take care not to break the claw.



F-7-80

3) Slide the reader unit, and open the cartridge cover.

4) Remove the 6 screws [1], and detach the registration roller unit [2].



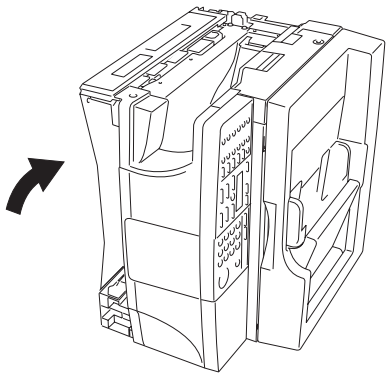
F-7-81

7.6.10 Vertical Path Roller

7.6.10.1 Removing the Vertical Path Roller 0006-3463

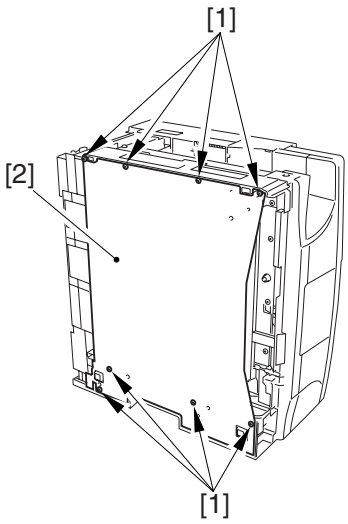
1) Remove the cassette.

2) Place the machine so that its pickup side is at the bottom.



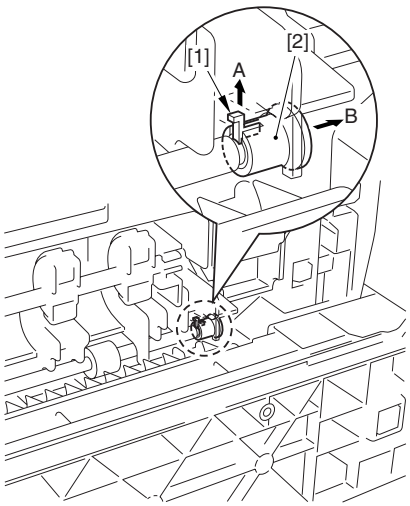
F-7-82

3) Remove the 8 screws [1], and detach the bottom plate [2].



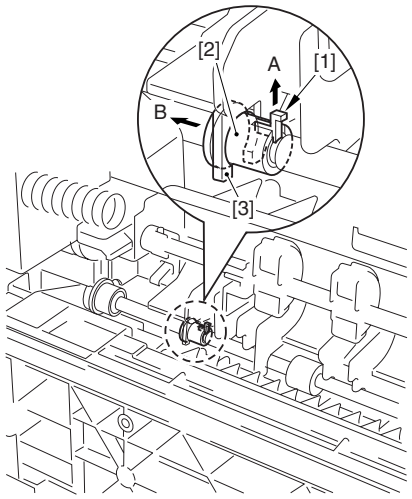
F-7-83

4) Push off the claw [1] of the bushing (front) in the direction of A, and draw out the bushing (front) [2] in the direction of B.



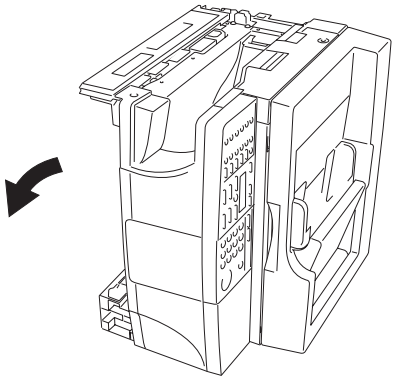
F-7-84

5) Push off the claw [1] of the bushing (rear) in the direction of A, and draw out the bushing (rear) [2] in the direction of B till the bushing goes out of the feeder frame [3].



F-7-85

6) Place the machine in normal position.

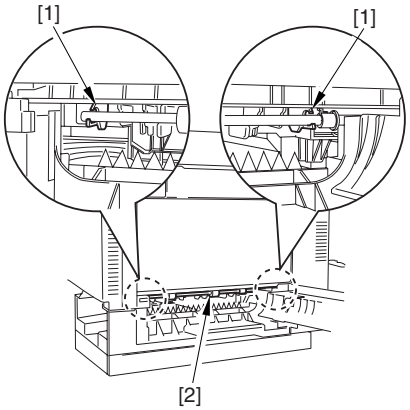


F-7-86

7) Open the right door.
8) Slide the vertical path roller [2] to the front to detach.

⚠

To avoid break of the feeder frame [1], remove the bushings before removing or mounting the vertical path roller.



F-7-87

Chapter 8 Fixing System

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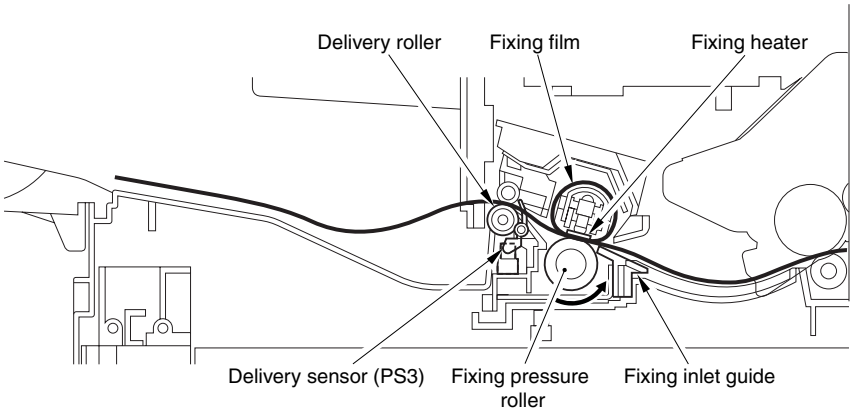
8.1 Construction

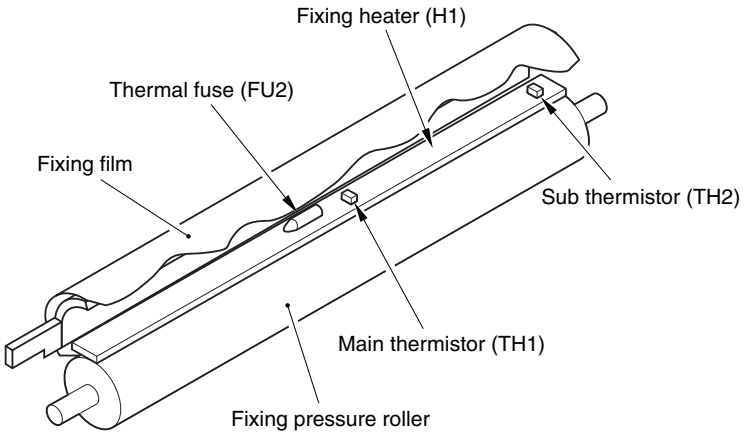
8.1.1 Outline

0006-2975

The fixing pressure roller and the delivery roller are driven by the main motor.
The paper separated from the photosensitive drum is moved to the inside of the fixing assembly; the paper is then moved outside it after the toner is fused to the paper by the work of the fixing film and the fixing pressure roller.
The delivery sensor (PS3) is used to detect paper coming out of the fixing assembly.



F-8-1



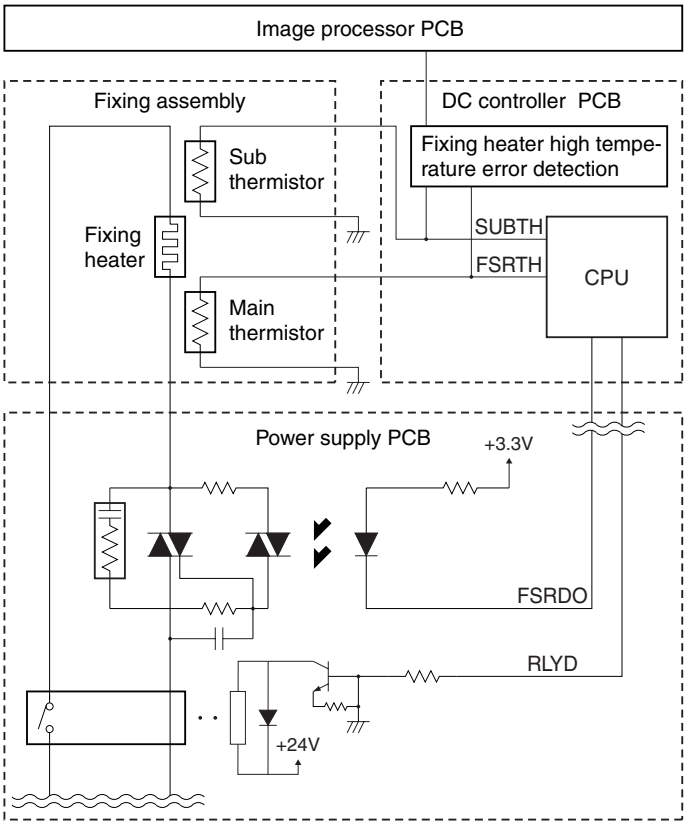
F-8-2

8.2 Various Control Mechanisms

8.2.1 Controlling the Fixing Roller Temperature

8.2.1.1 Controlling the Fixing Temperature 0006-2977

The fixing film unit has a plate-shaped fixing heater built into it for heating the fixing film.
The fixing heater is equipped with 2 thermistor: a main thermistor in the middle and a sub thermistor at the end. The main thermistor is used to control the temperature of the fixing heater and to detect its overheating, while the sub thermistor is used to detect an error temperature on the end of the fixing heater.
The CPU on the DC controller PCB monitors the main thermistor signal (FSRTH) and the sub thermistor signal (SUBTH) from the thermistors for control of the fixing heater drive signal (FSRD0) and the relay drive signal (RLYD), thus varying the supply of power to the heater and, ultimately, controlling the temperature of the fixing heater.



F-8-3

The CPU on the DC controller PCB executes the following 4 types of fixing temperature control:

- Start-Up Temperature Control

In response to a print command from the image processor PCB, the temperature of the fixing heater is started up to a level 15 deg C/59 deg F lower than paper passage control temperature target.

- Paper Passage Temperature Control
While printing is taking place, the fixing heater temperature is controlled so that it is identical with the paper passage control temperature target.

- Sheet-to-Sheet Temperature Control
To prevent overheating of areas not covered by paper (between sheets), the fixing heater temperature is controlled to a level relatively lower than the paper passage control temperature
target.

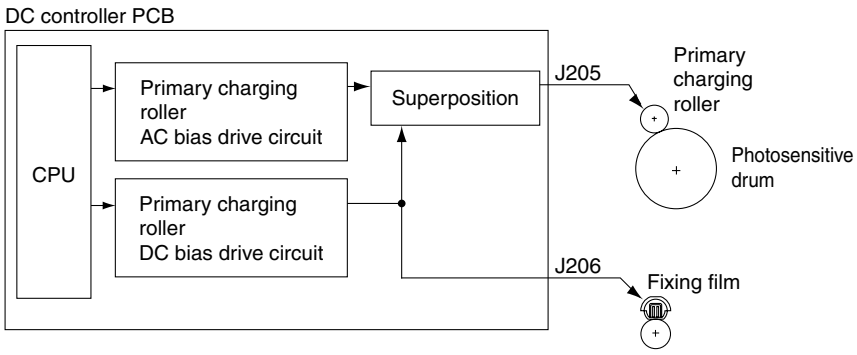
- Rest Heating Temperature Control
While the machine is at rest, the fixing pressure roller is heated so that the toner collecting on it is melted and moved to the fixing film, thereby ridding the roller of toner.
The rest heating control mechanism is used to control the temperature of the fixing heater to a level lower than the paper passage target level when LTR or larger paper is used for printing.

The control temperature targets are switched in reference to the following 4 conditions:
- paper type (as indicated by a command during printing)
- type of control (cover paper or between sheets)
- change in fixing temperature control (OFF -> start-up -> paper passage, etc.)
- count of prints in continuous mode

8.2.2 Controlling the Fixing File Bias Temperature

8.2.2.1 Controlling the Fixing Film Bias 0006-2979

The machine is equipped with a fixing film bias control mechanism which is controlled by the CPU on the DC controller PCB. The fixing film bias is used to prevent displacement of toner deposits; i.e., when the primary charging roller DC bias is applied, a bias of the same polarity as the toner is applied to the fixing film so as to create a magnetic field between the paper and the film.



F-8-4

8.3 Protective Functions

8.3.1 Outline

0006-2980

The fixing heater safety circuit is part of the DC controller PCB, and is used to monitor the fixing temperature for an error at all times. If the output voltage for the main thermistor or the sub thermistor reaches about 0.37 V or lower (about 310 deg C/590 deg F), the relay will be turned off regardless of the state of the relay drive signal (RLYD) from the CPU to shut the power to the fixing heater.
If the temperature of the fixing heater increases abnormally, on the other hand, to exceed about 230 drg C/446 deg F, the thermal fuse will melt to cut the power to the fixing heater.

8.3.2 Detecting a Fault in the Fixing Assembly

0006-2981

The CPU on the DC controller PCB will identify a fault in the fixing assembly if any of the following conditions (a through f) occurs; as a result,

- it will cut the power to the fixing heater.
- it will cause the relay drive signal (RYLD) to go '1' to turn off the relay and, at the same time, will communicate the presence of a fault to the image processor PCB.

a.Overheating 1 (all conditions)
The CPU will identify overheating 1 if the main thermistor detects 230 deg C/446 deg F for 1 sec or more continuously.

b. Start-Up Error 1 (start-up)
The CPU will identify start-up error 1 if a level of temperature lower than 120 deg C/248 deg F is detected for 1 sec or more continuously 10 sec after the heater is supplied with power.

c. Start-Up Error 2 (startup/paper passage)
The CPU will identify start-up error 2 if a level of temperature 15 deg C/59 deg F lower than the paper passage temperature control target is not detected at all 75 sec after the heater is supplied with power.

d. Temperature Control Low Temperature Error (paper passage/sheet-to-sheet/rest heating/temperature control)
The CPU will identify a temperature control low condition error if a level of temperature lower than 120 deg C/248 deg F is detected for 1 sec or more continuously in paper passage, sheetto- sheet, rest heating, or temperature control state.

e. Main thermistor Open Circuit (all conditions)
The CPU will identify main thermistor open circuit if the A/D conversion value of the output voltage from the main thermistor is in excess of a specific value for 1 sec or more.

f. Overheating 2 (all conditions)
The CPU will identify overheating 2 if the sub thermistor detects 300 deg C/572 deg F or higher for 0.2 sec over

more continuously.

g. Sub Thermistor Error Low Temperature 1 (warm-up)

The CPU will identify sub thermistor error low temperature 1 if the temperature reading is lower than 75 deg C/167 deg F for 1 sec or more 10 sec after the heater is first supplied with power.

h.Sub Thermistor Error Low Temperature 2 (cool-down)

The CPU will identify sub thermistor error low temperature 2 if all the following conditions exit when the heater is off after printing ends and the trailing edge of the paper moves past the delivery sensor.

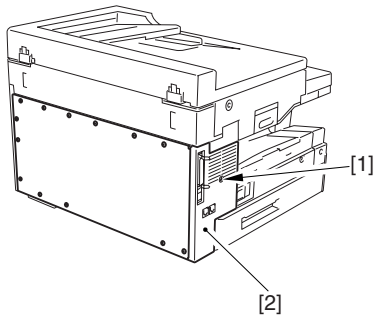
- the thermistor reading is lower than 75 deg C/167 deg F when the heater is off.
- printing has not been cancelled in the middle.
- no error has occurred during printing.
- the thermistor reading is lower than 75 deg C/167 deg F before the trailing edge of the paper moves past the delivery sensor.

8.4 Parts Replacement Procedure

8.4.1 Fixing Unit

8.4.1.1 Removing the Left Cover 0006-3480

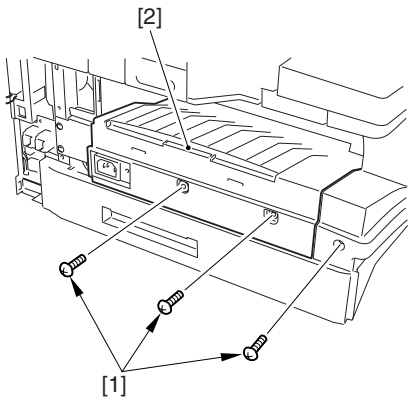
1) Remove the screw [1], and detach the left cover [2].



F-8-5

8.4.1.2 Removing the Delivery Cover 0006-3481

1) Remove the 3 screws [1], and detach the delivery cover [2].

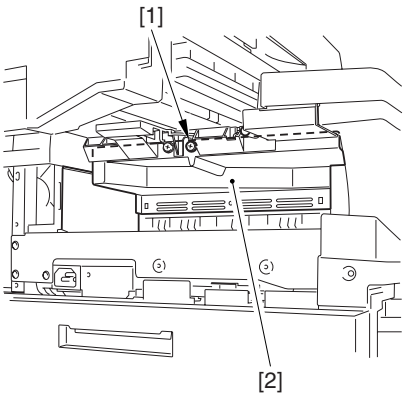


F-8-6

8.4.1.3 Removing the Delivery Upper Cover 0006-3482

1) Slide the reader unit.

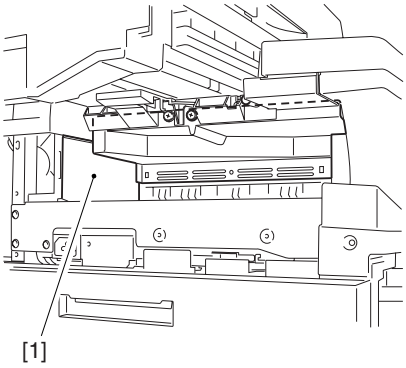
2) Remove the screw [1], and detach the delivery upper cover [2].



F-8-7

8.4.1.4 Removing the Delivery Rear Cover 0006-3483

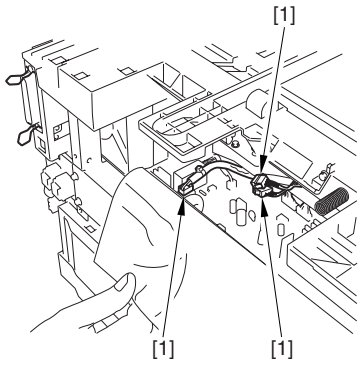
1) Remove the delivery rear cover [1].



F-8-8

8.4.1.5 Disconnect connector 0006-3596

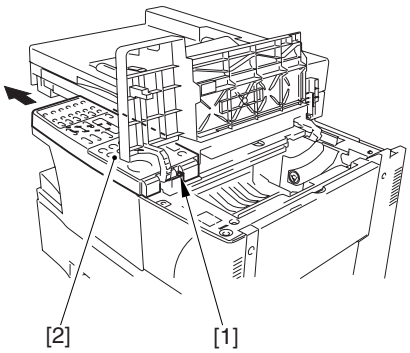
1) Disconnect the 3 connectors [1].



F-8-9

8.4.1.6 Removing the Control Panel 0006-3597

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.

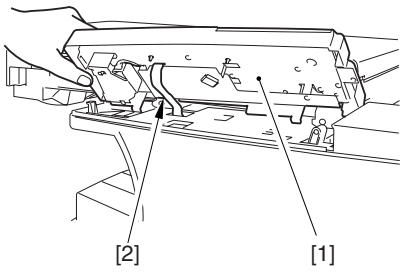


F-8-10

3) Close the cartridge cover.
4) Disconnect the connector [2], and detach the control panel [1].

⚠

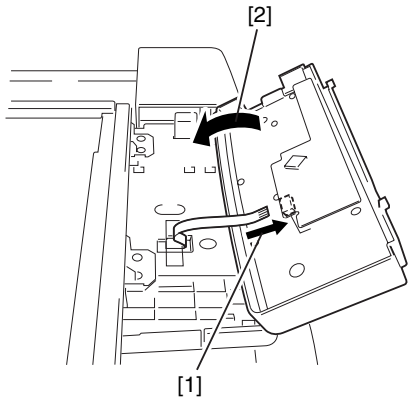
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-8-11

MEMO:

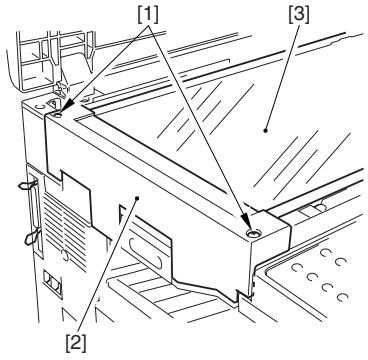
To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



F-8-12

8.4.1.7 Removing the Copyboard Glass 0006-3598

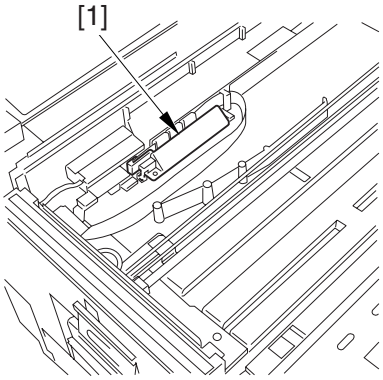
1) Open the ADF (copyboard cover).
2) Remove the 2 screws [1], and detach the copyboard glass retainer [2].
3) Remove the copyboard glass [3].



F-8-13

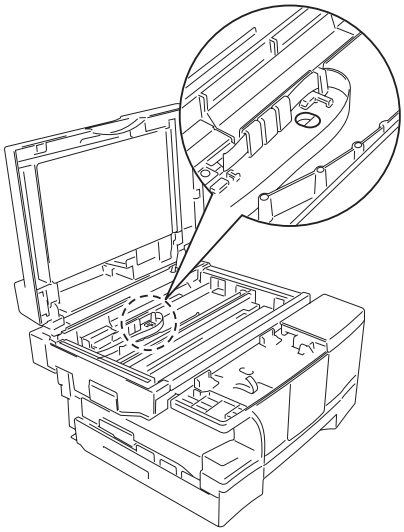
8.4.1.8 Removing the Fixing Assembly 0006-3599

1) Remove the cover [1].



F-8-14

2) Slide the reader unit so that the hole in the reader unit and the hole in the top plate match.



F-8-15

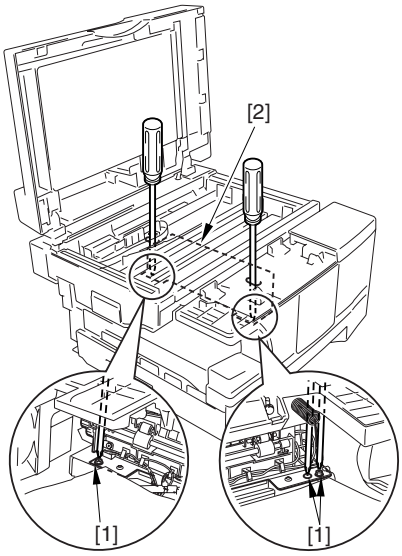
3) Remove the 3 screws [1], and detach the fixing assembly [2].

MEMO:

To remove the screw [1] used to secure the fixing assembly in place, try removing the screws from above the reader unit using a long screwdriver (i.e., make use of the opening above the screws to facilitate the work).

⚠

When mounting the fixing assembly, be sure to engage the gear of the fixing assembly and the gear on the main motor side.

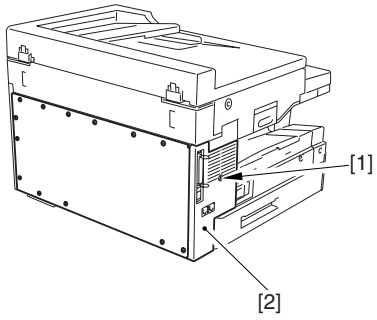


F-8-16

8.4.2 Pressure Roller

8.4.2.1 Removing the Left Cover 0006-3611

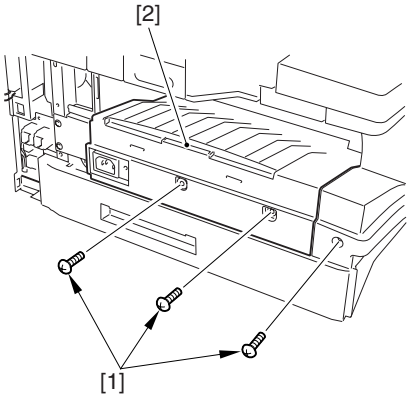
1) Remove the screw [1], and detach the left cover [2].



F-8-17

8.4.2.2 Removing the Delivery Cover 0006-3612

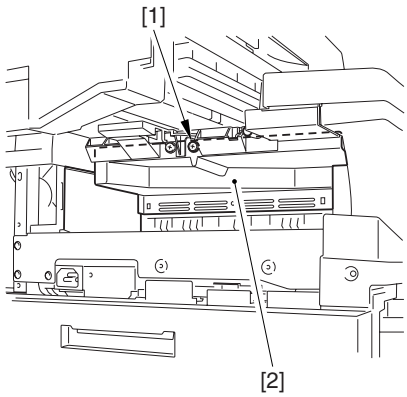
1) Remove the 3 screws [1], and detach the delivery cover [2].



F-8-18

8.4.2.3 Removing the Delivery Upper Cover 0006-3613

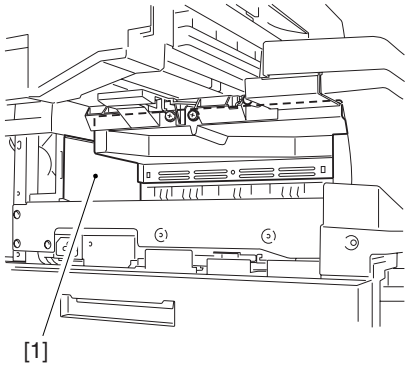
1) Slide the reader unit.
2) Remove the screw [1], and detach the delivery upper cover [2].



F-8-19

8.4.2.4 Removing the Delivery Rear Cover 0006-3614

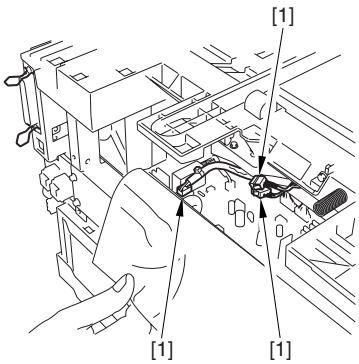
1) Remove the delivery rear cover [1].



F-8-20

8.4.2.5 Disconnect connector 0006-3615

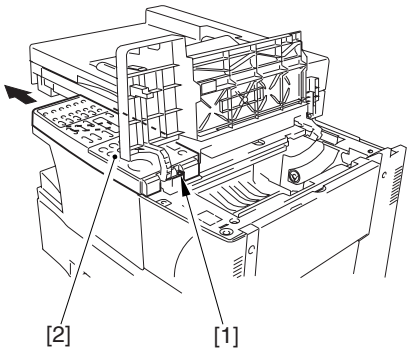
1) Disconnect the 3 connectors [1].



F-8-21

8.4.2.6 Removing the Control Panel 0006-3617

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.



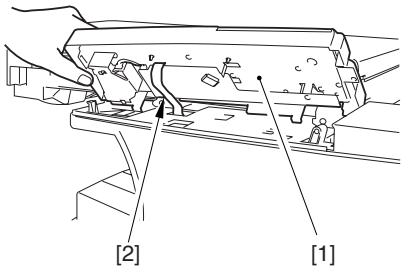
F-8-22

3) Close the cartridge cover.

4) Disconnect the connector [2], and detach the control panel [1].

⚠

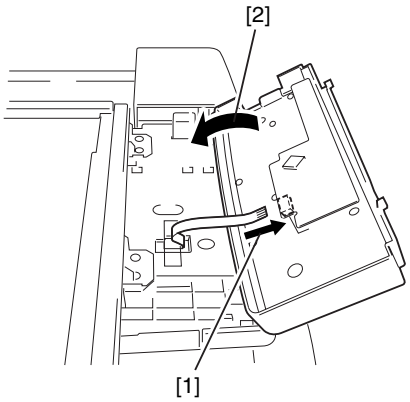
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-8-23

MEMO:

To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



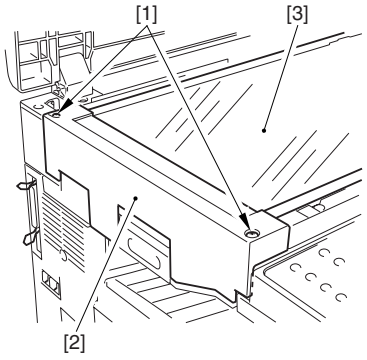
F-8-24

8.4.2.7 Removing the Copyboard Glass 0006-3618

1) Open the ADF (copyboard cover).

2) Remove the 2 screws [1], and detach the copyboard glass retainer [2].

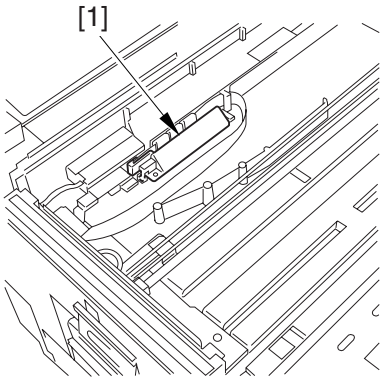
3) Remove the copyboard glass [3].



F-8-25

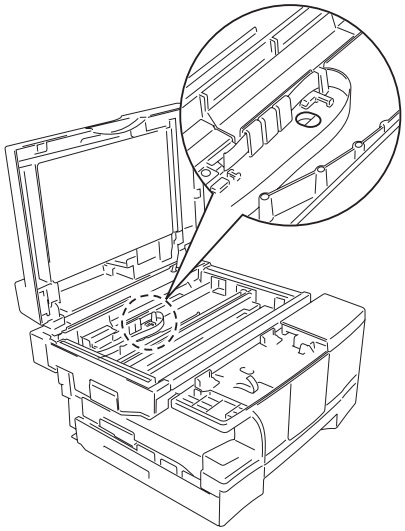
8.4.2.8 Removing the Fixing Assembly 0006-3619

1) Remove the cover [1].



F-8-26

2) Slide the reader unit so that the hole in the reader unit and the hole in the top plate match.



F-8-27

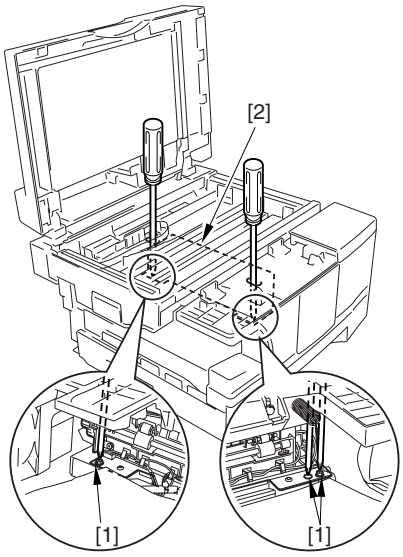
3) Remove the 3 screws [1], and detach the fixing assembly [2].

MEMO:

To remove the screw [1] used to secure the fixing assembly in place, try removing the screws from above the reader unit using a long screwdriver (i.e., make use of the opening above the screws to facilitate the work).

⚠

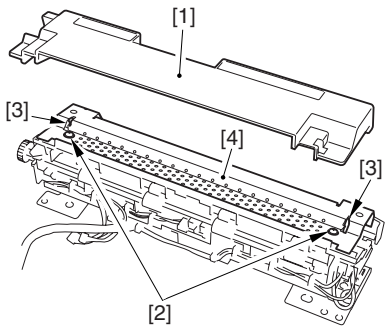
When mounting the fixing assembly, be sure to engage the gear of the fixing assembly and the gear on the main motor side.



F-8-28

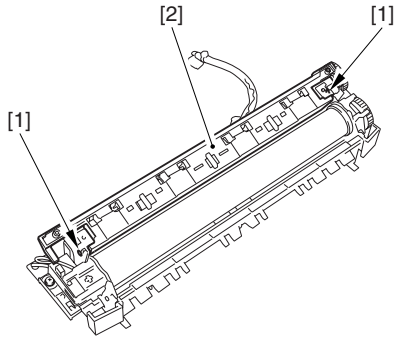
8.4.2.9 Removing the Fixing Film Unit 0006-3620

1) Remove the fixing upper cover [1]
2) Remove the 2 screws [2].
3) Remove the 2 hooks [3], and detach the plate [4].



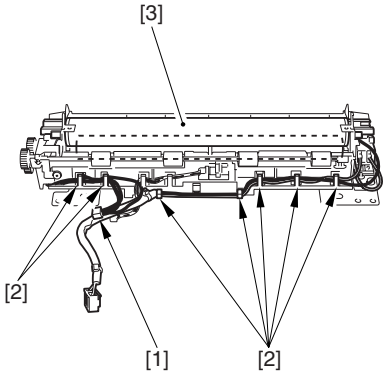
F-8-29

4) Remove the 2 ribs [1], and detach the delivery roll unit [2].



F-8-30

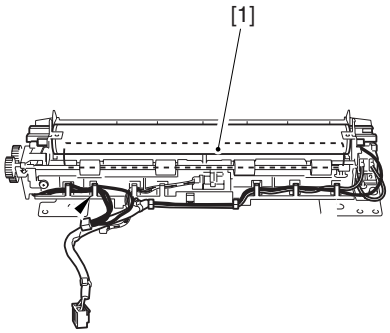
5) Free the harness [1] from the harness guide [2], and detach the fixing film unit [3].



F-8-31

8.4.2.10 Removing the Fixing Pressure Roller 0006-3621

1) Remove the fixing pressure roller [1].

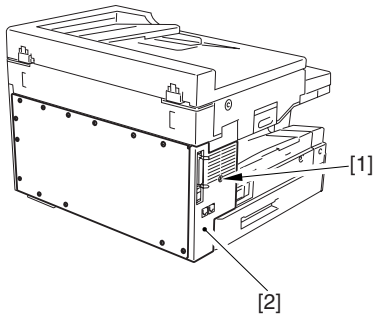


F-8-32

8.4.3 Fixing Film

8.4.3.1 Removing the Left Cover 0006-3600

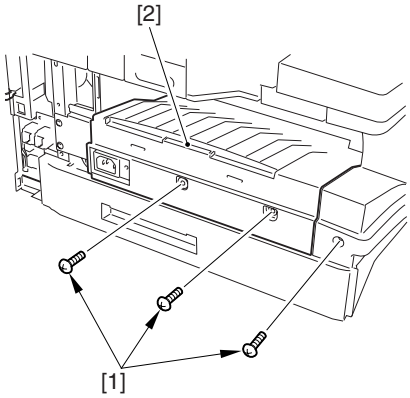
1) Remove the screw [1], and detach the left cover [2].



F-8-33

8.4.3.2 Removing the Delivery Cover 0006-3601

1) Remove the 3 screws [1], and detach the delivery cover [2].

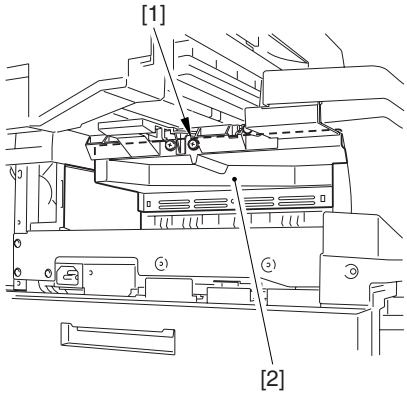


F-8-34

8.4.3.3 Removing the Delivery Upper Cover 0006-3602

1) Slide the reader unit.

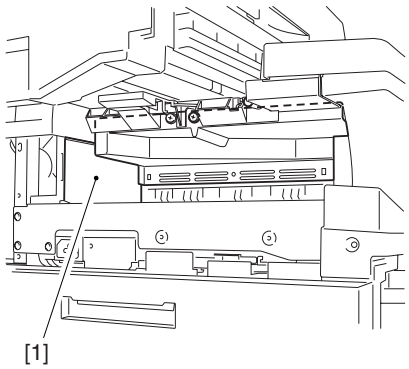
2) Remove the screw [1], and detach the delivery upper cover [2].



F-8-35

8.4.3.4 Removing the Delivery Rear Cover 0006-3603

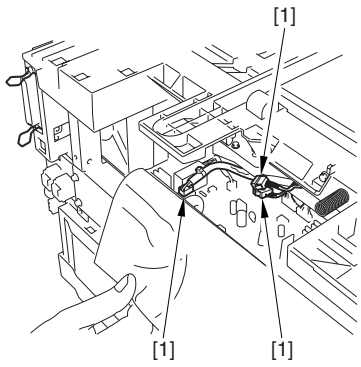
1) Remove the delivery rear cover [1].



F-8-36

8.4.3.5 Disconnect connector 0006-3604

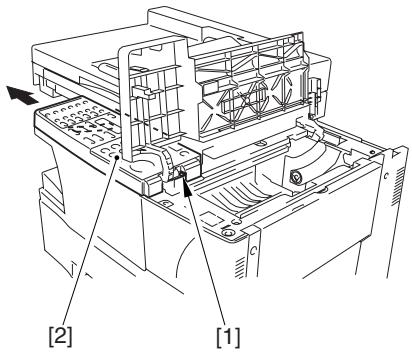
1) Disconnect the 3 connectors [1].



F-8-37

8.4.3.6 Removing the Control Panel 0006-3605

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.

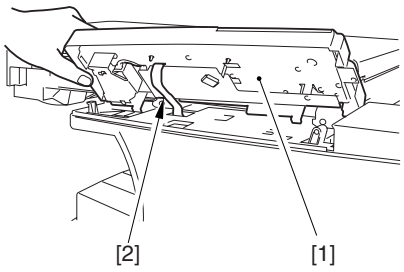


F-8-38

3) Close the cartridge cover.
4) Disconnect the connector [2], and detach the control panel [1].

⚠

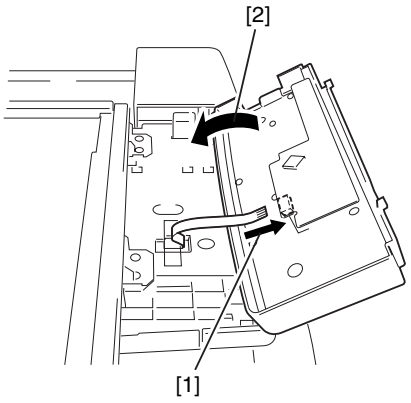
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-8-39

MEMO:

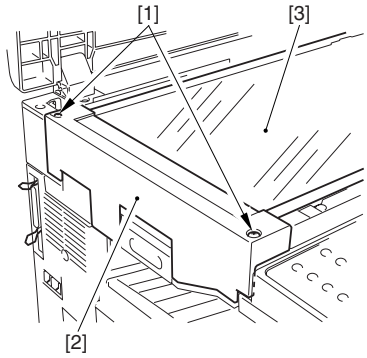
To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



F-8-40

8.4.3.7 Removing the Copyboard Glass 0006-3606

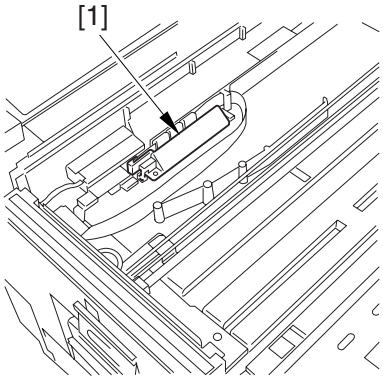
1) Open the ADF (copyboard cover).
2) Remove the 2 screws [1], and detach the copyboard glass retainer [2].
3) Remove the copyboard glass [3].



F-8-41

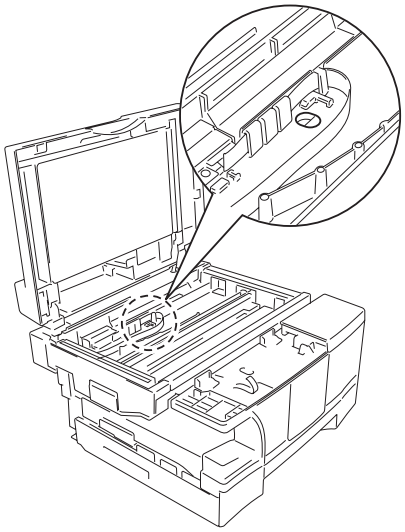
8.4.3.8 Removing the Fixing Assembly 0006-3607

1) Remove the cover [1].



F-8-42

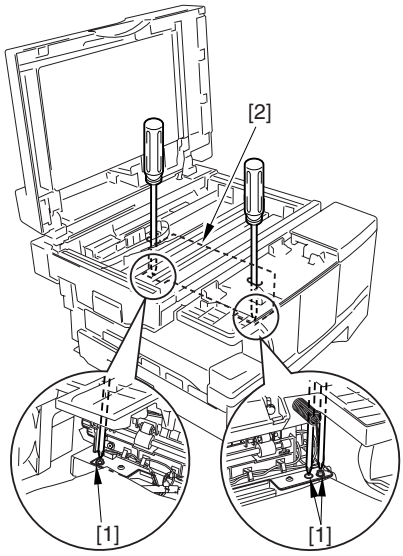
2) Slide the reader unit so that the hole in the reader unit and the hole in the top plate match.


F-8-43

3) Remove the 3 screws [1], and detach the fixing assembly [2].

MEMO:
To remove the screw [1] used to secure the fixing assembly in place, try removing the screws from above the reader unit using a long screwdriver (i.e., make use of the opening above the screws to facilitate the work).

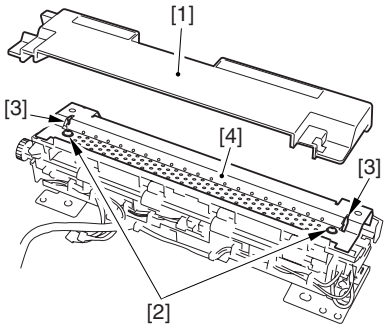
When mounting the fixing assembly, be sure to engage the gear of the fixing assembly and the gear on the main motor side.



F-8-44

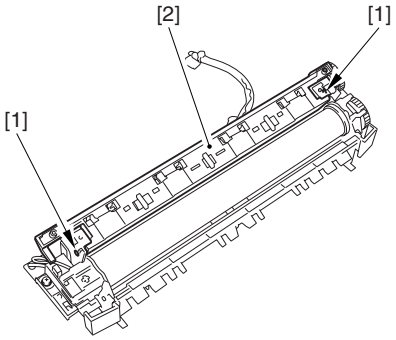
8.4.3.9 Removing the Fixing Film Unit 0006-3608

1) Remove the fixing upper cover [1]
2) Remove the 2 screws [2].
3) Remove the 2 hooks [3], and detach the plate [4].



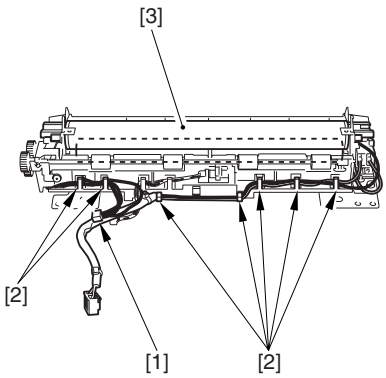
F-8-45

4) Remove the 2 ribs [1], and detach the delivery roll unit [2].



F-8-46

5) Free the harness [1] from the harness guide [2], and detach the fixing film unit [3].

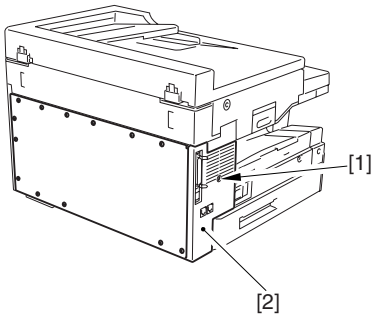


F-8-47

8.4.4 Fixing Delivery Sensor

8.4.4.1 Removing the Left Cover 0006-3622

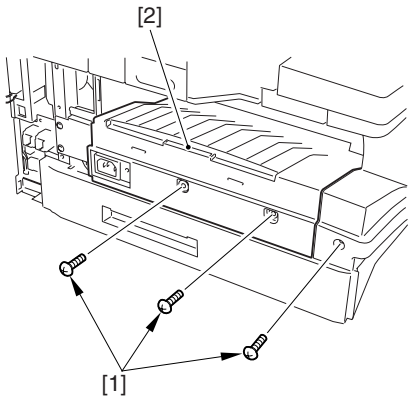
1) Remove the screw [1], and detach the left cover [2].



F-8-48

8.4.4.2 Removing the Delivery Cover 0006-3623

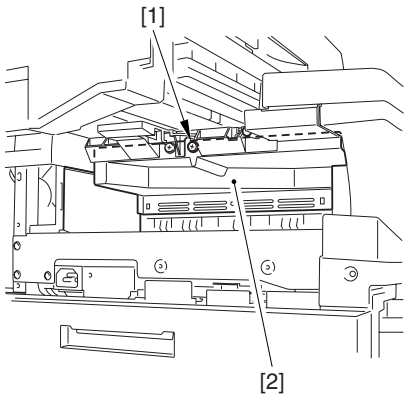
1) Remove the 3 screws [1], and detach the delivery cover [2].



F-8-49

8.4.4.3 Removing the Delivery Upper Cover 0006-3624

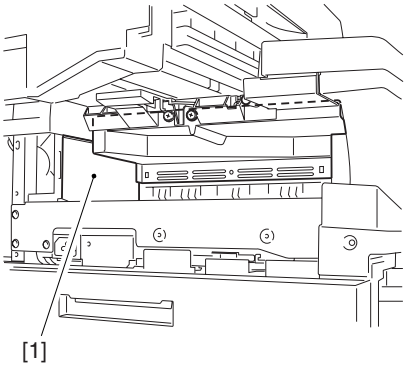
1) Slide the reader unit.
2) Remove the screw [1], and detach the delivery upper cover [2].



F-8-50

8.4.4.4 Removing the Delivery Rear Cover 0006-3625

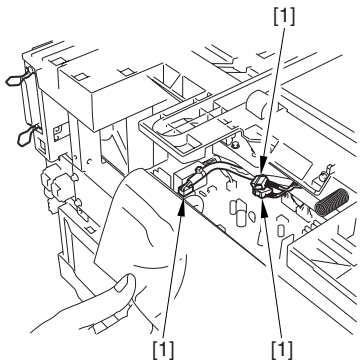
1) Remove the delivery rear cover [1].



F-8-51

8.4.4.5 Disconnect connector 0006-3626

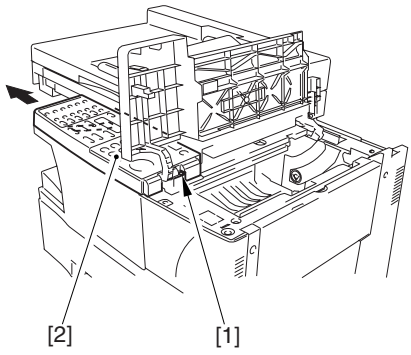
1) Disconnect the 3 connectors [1].



F-8-52

8.4.4.6 Removing the Control Panel 0006-3627

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.

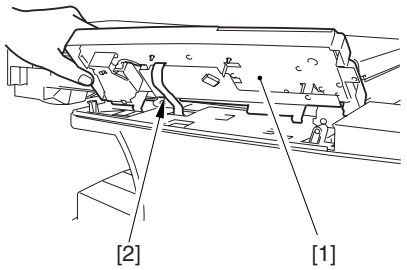


F-8-53

3) Close the cartridge cover.
4) Disconnect the connector [2], and detach the control panel [1].

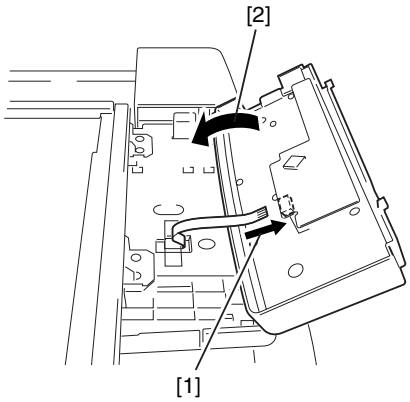
⚠

To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-8-54

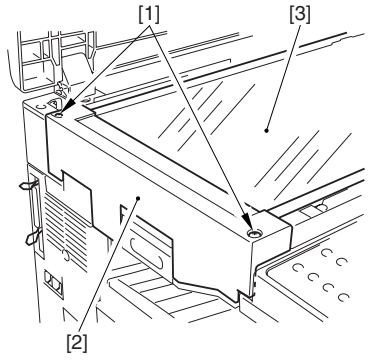
MEMO:
To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



F-8-55

8.4.4.7 Removing the Copyboard Glass 0006-3628

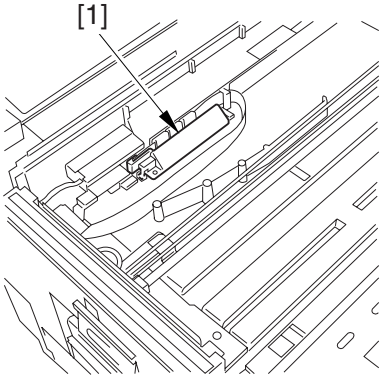
1) Open the ADF (copyboard cover).
2) Remove the 2 screws [1], and detach the copyboard glass retainer [2].
3) Remove the copyboard glass [3].



F-8-56

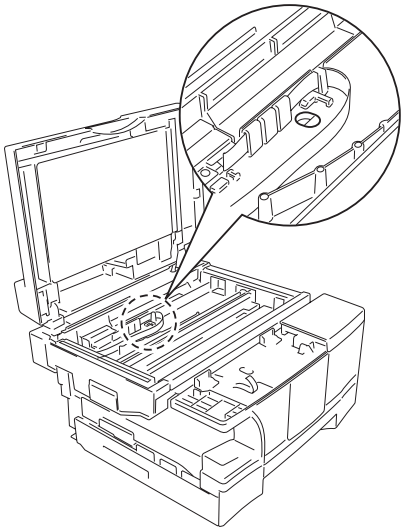
8.4.4.8 Removing the Fixing Assembly 0006-3629

1) Remove the cover [1].



F-8-57

2) Slide the reader unit so that the hole in the reader unit and the hole in the top plate match.



F-8-58

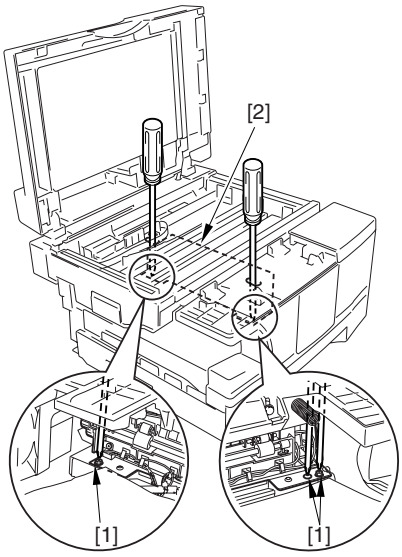
3) Remove the 3 screws [1], and detach the fixing assembly [2].

MEMO:

To remove the screw [1] used to secure the fixing assembly in place, try removing the screws from above the reader unit using a long screwdriver (i.e., make use of the opening above the screws to facilitate the work).

⚠

When mounting the fixing assembly, be sure to engage the gear of the fixing assembly and the gear on the main motor side.

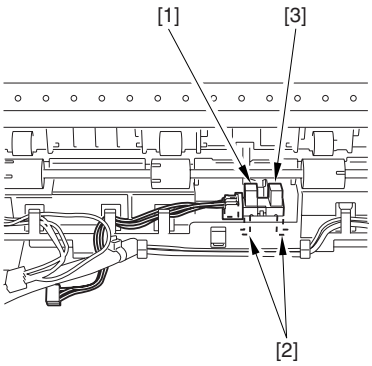


F-8-59

8.4.4.9 Removing the Delivery Sensor

0006-3630

1) Disconnect the connector [1].
2) Free the 2 hooks [2], and detach the delivery sensor [3].



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9.1 Fans

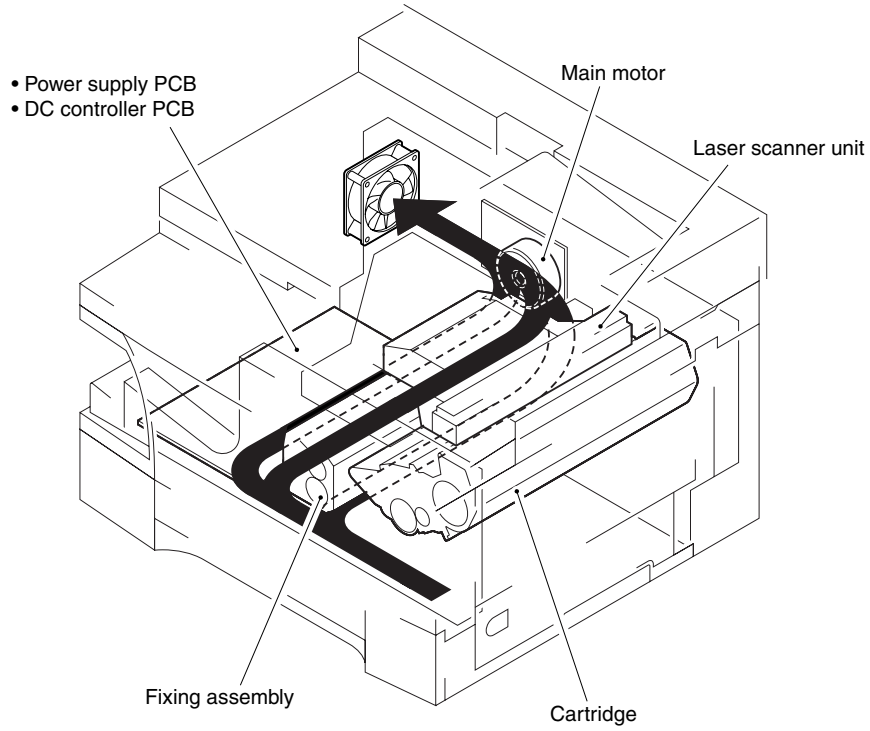
9.1.1 Outline

0006-3002

The machine is equipped with a single fan at the rear of the delivery assembly to cool the laser scanner unit, to discharge heat from around the fixing assembly, to cool the elements of the PCBs, and to discharge ozone.
The fan is controlled by the CPU on the DC controller PCB for the following:

- full-speed rotation while the main motor is in operation.
- full-speed rotation for 30 sec and half-speed rotation for 60 sec after the main motor stops.
- full-speed rotation for 30 sec and half-speed rotation for 60 sec during WAIT.

The CPU on the DC controller PCB generates the fan drive signal (FANON) based on the state of the fan stop signal (FANSTOP; 0: reset, 1: rotate) and the full-speed/half-speed switch signal (FANHALF; 0: half-speed, 1: full-speed) to control the fan rotation to any of three: rest, half-speed, full-speed.



F-9-1

9.2 Power Supply System

9.2.1 Power Supply

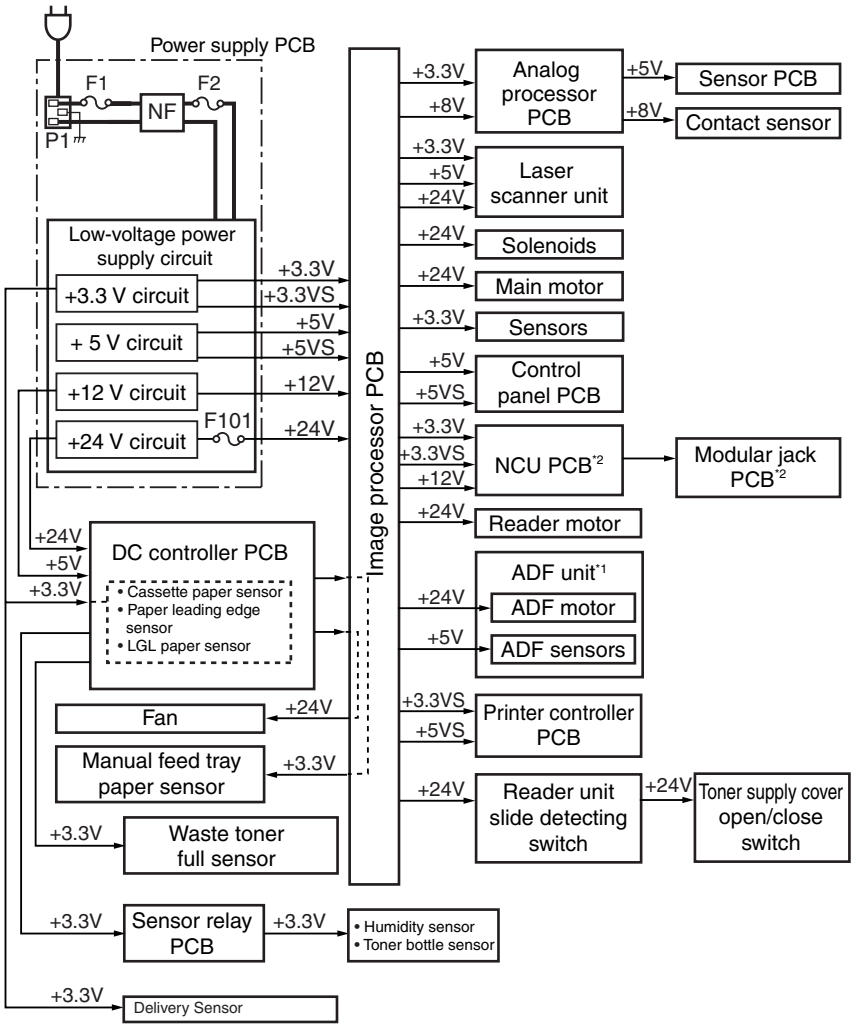
9.2.1.1 Route of Low Voltage Power Supply 0006-2989

The machine's DC power supply is generated by the power supply PCB.
The AC power arriving at the power supply PCB is converted into the following for supply to loads: +3.3 VDC, +3.3 VSDC, +5 VDC, +5 VSDC, +12 VDC, +24 VDC.
See the following for an outline of the DC power supply:

T-9-1

Output voltage	Output voltage value
+3.3V	+3.4V +/- 3%
+3.3VS*1	+3.4V +/- 3%
+5.1V	+5.1V +/- 4%
+5.1VS*1	+5.1V +/- 4%
+12V	+12V +/- 5%
+24V	+24V +/- 5%

*1: Also supplied during ESS mode.



*1 : Only if equipped with ADF functions.
*2 : Only if equipped with fax functions.

F-9-2

9.2.1.2 Hegh-Voltage Power Supply Circuit

0006-2994

The high voltage output circuit is built into the DC controller PCB.

The CPU on the DC controller PCB sends instructions for the generation of the following high voltages at specific timing:

- primary charging roller bias (AC voltage + DC negative voltage)
- developing bias (AC voltage + DC negative voltage)
- transfer charging roller bias (DC positive voltage or DC negative voltage)

9.2.2 Protection Function

9.2.2.1 Protective Functions 0006-2992

The power supply PCB is equipped with an over-current/over-voltage protection mechanism to prevent damage to the power circuit in the event of an over-current or over-voltage, as caused by a short circuit or the like on the load side. If the over-current/over-voltage protective mechanism has gone ON, disconnect the power cord, and correct the fault; then, connect the power cord once again to reset the machine. If short circuiting and resetting are repeated, the internal fuse (F1, F2, F101) can melt.

9.2.3 Backup Battery

9.2.3.1 Outline 0006-3004

The machine's image processor PCB is equipped with a lithium battery (BAT1) and a vanadium lithium secondary battery (BAT2) for back-up of the data in the SRAM and the SDARM in consideration of a power outage or when the power is turned off.

⚠

The batteries must be replaced correctly to avoid explosion.
Do not replace any battery with one not indicated for the machine, i.e., use one of the same type or equivalent.
Be sure to dispose of used batteries according to local laws and regulations.

9.2.3.2 Lithium Battery (BAT1) 0006-3007

The data backed up in the SRAM by the lithium battery (BAT1) contains user data for fax functions, communications control data, and service mode settings.

Battery life: about 5 yr

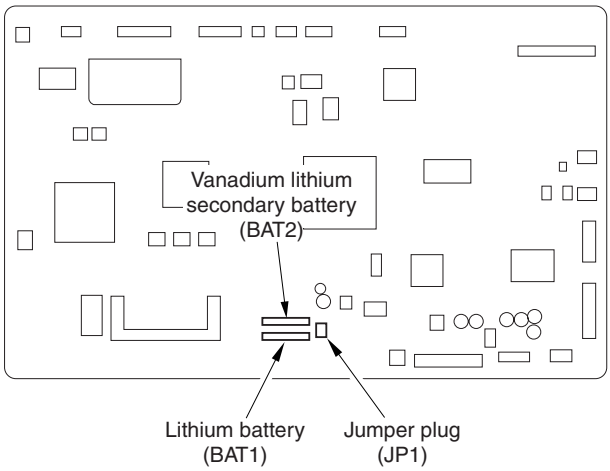
The LCD will indicate 'DATA ERROR' when the power is tuned on after the lithium battery (BAT1) has reached the end of its life. If such a condition has occurred, be sure to replace the image processor PCB according to the instructions.

⚠

If you disconnect the jumper plug (JP1) of the image processor PCB and turn off the power, all control data will be reset to default settings. Do not disconnect the jumper plug (JP1) to prevent the loss of data.

MEMO:
The pin of the jumper plug (JP1) is displaced on the image processor PCB available as a service part so as to prevent

exhaustion of the lithium battery (BAT1).



F-9-3

9.2.3.3 Vanadium Lithium Secondary Battery (BAT2) 0006-3012

The data backed up by the vanadium lithium secondary battery (BAT2) is image data used for fax transmission/ reception, and it does not include the image data for memory copying.

T-9-2

Back-up time:	about 2 hr (assuming that the machine is kept ON for 5 day or more under normal temperature/pressure conditions)
Battery life:	about 5 yr or after repeating charging and discharging 40 times at 100%

If the backup data cannot be stored longer than half the indicated period (even after the machine has been powered for 5 day or longer under normal temperature and atmospheric conditions), suspect that the battery has reached the end of its life.

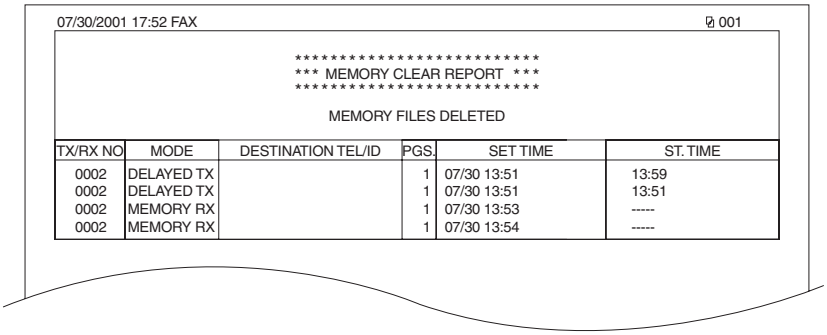
⚠

If the foregoing back-up time is exceeded, the image data stored in SDRAM will be lost. To prevent loss of image data for service work or relocation, be sure to print out the image data stored in SDRAM before starting the work.

MEMO:

Memory Clear List

If the memory clear list is automatically printed when the machine is turned on, the image data indicated on the list is the data that was lost without back-up. After the list is printed, the image data storage and the control information will automatically be deleted. The following is a sample of the memory clear list:


07/30/2001 17:52 FAX 001

*** MEMORY CLEAR REPORT ***

MEMORY FILES DELETED

TX/RX NO	MODE	DESTINATION TEL/ID	PGS.	SET TIME	ST. TIME
0002	DELAYED TX		1	07/30 13:51	13:59
0002	DELAYED TX		1	07/30 13:51	13:51
0002	MEMORY RX		1	07/30 13:53	-----
0002	MEMORY RX		1	07/30 13:54	-----

F-9-4

9.2.3.4 Types of Data 0006-3018

The types of data backed up by the data back-up lithium batteries (BAT1, BAT2) on the image processor PCB are as follows: a, b, and c are stored in the SRAM (backed up by BAT1), while d is the data stored in the SDRAM (backed up by BAT2).

a.User Data

T-9-3

Item		Description
register/set	1. data register	(various settings of reception/ transmission mode)
	2. telephone number register	(one-touch dial, etc)

b. Service Mode Data

T-9-4

Item		Description
#1.	SSSW	error control, echo remedy, etc.
#2.	MENU	NL equalizer, transmission level, etc.
#3.	NUMERIC Param	FAX/TEL switch parameter, etc.
#4A.	SPECIAL	not used normally
#4B.	NCU	not used normally
#4C.	ISDN	not used normally
#5.	TYPE	not used normally

Item		Description
#6.	SCANNER	image position adjustment, etc.
#7.	PRINTER	reduction, etc.
#8.	PDL	malfunction
#9.	COUNTER	reading counter, print counter, etc.
#10.	REPORT	system dump list, key history report output, etc.
#11.	DOWN LOAD	malfunction
#12.	CLEAR	various data initialization, etc.
#13.	ROM	version No., checksum, etc.
#14.	CS SET	malfunction

c. Control Data

T-9-5

Item	Description
communication control record	most recent 20 communications (reception/ transmission)
system dump record	past communications state, error communication history, etc.

d.Data Backed Up by BAT2

T-9-6

Item	Description
Transmission image	transmission (memory transmission, broadcast) timer transmission timer broadcast
reception image	memory reception

9.2.3.5 Printing the Backup Data List 0006-6556

The data baked up in control memory may be printed in the form of a list.

If you are replacing the image processor PCB, be sure to print out the list in advance. For the method of printing, see 2.2 or 3.21 of Chapter 2.

a. User Data

T-9-7

Item	List
register mode	user data list
dial register mode	1-touch spd dial list
	1-touch spd dail list (detail)
	coded speed dial list
	coded speed dial list (detail)
	group dial list

b. Service Mode Data

T-9-8

Item	List
service mode data	system data list

c. Control Data

T-9-9

Item	List
communication control record	activity report
system dump record	system dump list

9.2.4 Energy-Saving Function

9.2.4.1 Outline

0006-2996

The machine is equipped with an ESS mechanism to limit the consumption of power in standby as much as possible. The ESS function is controlled by the image processor PCB, and the machine shifts to ESS mode when the Energy Saver key in the control panel is pressed or the machine remains in standby state for a specific period of time.
The standby period after which the ESS mode is started is set in user mode: 3 to 30 min (factory default: 5 min).

9.2.4.2 Operation 0006-2998

While the machine remains in ESS mode, all in the control panel except the LED indicator of the Energy Saver key will remain OFF. The machine will not shift to ESS mode under any of the following conditions:

- The shift to ESS mode is not enabled in user mode.
- A jam or a service error occurred, and the Alarm lamp is ON. (In the case of the absence of toner or paper, full of the waste toner, and the machine shifts to ESS mode in the absence of paper.)
- The image memory contains image data.*1

While the machine is in ESS mode, it will shift out of the state in response to a press on the Energy Saver key; in addition, it will automatically shift out of the state under any of the following conditions:

- Print data arrives from the PC.
- A fax arrives.*1
- Off-hook state is detected.*1
- A report output time occurs.*1
- A timer call time occurs.*1

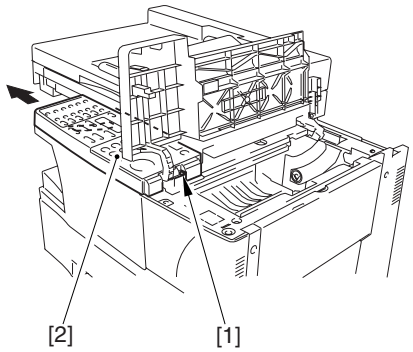
*1: Only if equipped with fax functions.

9.3 Parts Replacement Procedure

9.3.1 Control Panel

9.3.1.1 Removing the Control Panel 0006-2444

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.

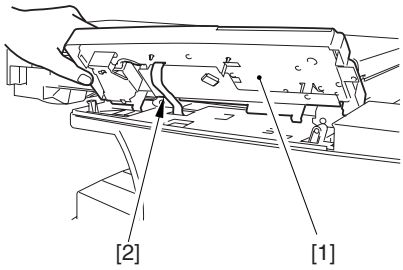


F-9-5

3) Close the cartridge cover.
4) Disconnect the connector [2], and detach the control panel [1].

⚠

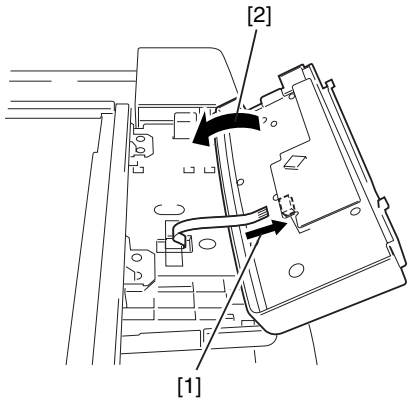
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-9-6

MEMO:

To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.

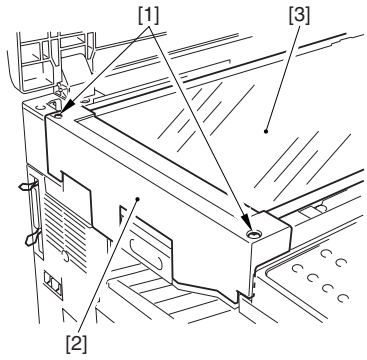


F-9-7

9.3.2 Analog Processor PCB

9.3.2.1 Removing the Copyboard Glass 0006-2895

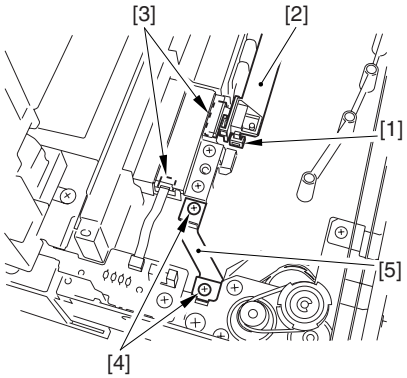
1) Open the ADF (copyboard cover).
2) Remove the 2 screws [1], and detach the copyboard glass retainer [2].
3) Remove the copyboard glass [3].



F-9-8

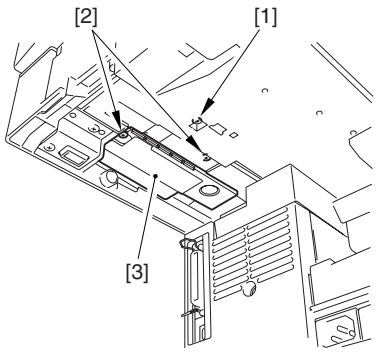
9.3.2.2 Removing the Analog Processor PCB 0006-2899

1) Move the contact sensor to the center.
2) Free the hook [1], and detach the cover [2].
3) Disconnect the 2 connectors [3].
4) Remove the 2 screws [4], and detach the grounding plate [5].



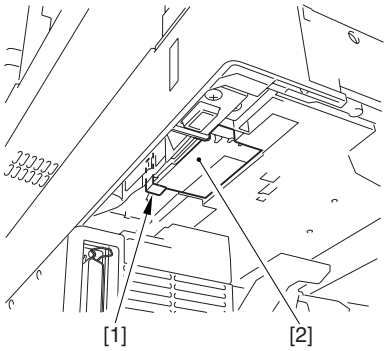
F-9-9

5) Slide the reader unit.
6) Remove the screw [1] from under the reader unit.
7) Remove the 2 screws [2] from under the reader unit, and detach the cover [3].



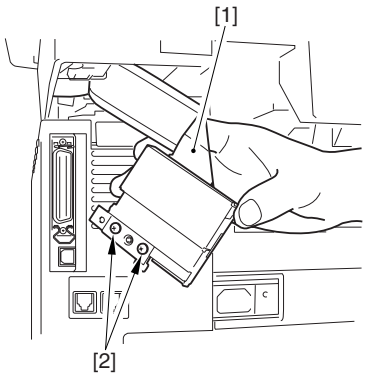
F-9-10

8) Remove the grounding plate [1], and detach the analog processor PCB unit [2].



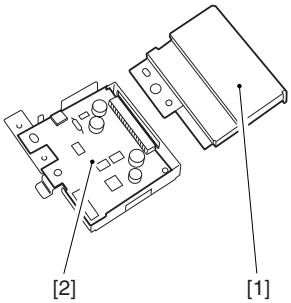
F-9-11

9) Disconnect the connector [1], and remove the 2 screws [2].



F-9-12

10) Remove the cover [1], and detach the analog processor PCB [2].

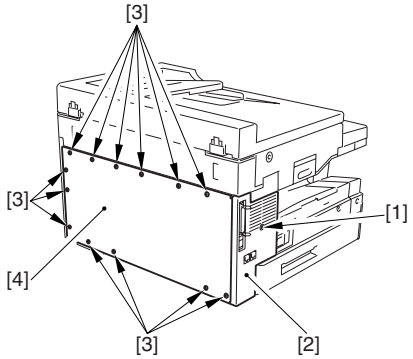


F-9-13

9.3.3 Removing the DC Controller PCB

9.3.3.1 Removing the Rear Cover 0006-3085

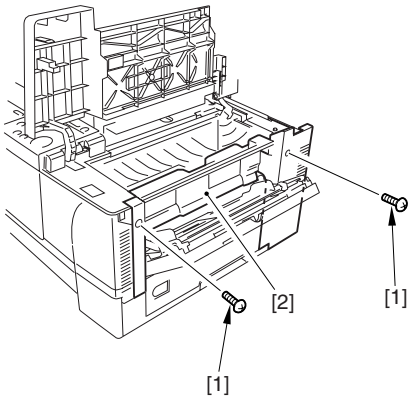
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-9-14

9.3.3.2 Removing the Right Cover 0006-3086

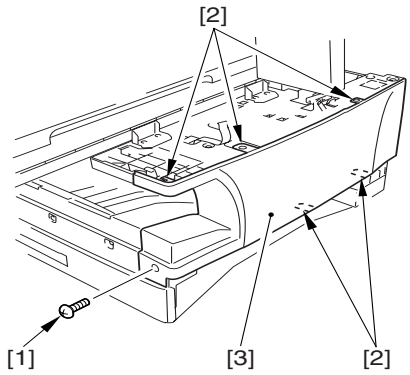
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-9-15

9.3.3.3 Removing the Toner Supply Cover 0006-3087

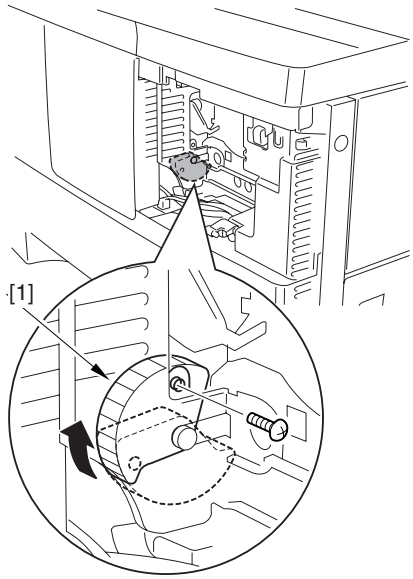
1) Open the toner supply cover [1].
2) Remove the 2 screws [2], and detach the cover [3].
3) Remove the toner supply cover [1].



F-9-16

⚠

To mount, fit a screw or the like with the gear [1] lifted in place the direction of the arrow as shown to stop; then, attach the toner supply cover, and remove the screw.

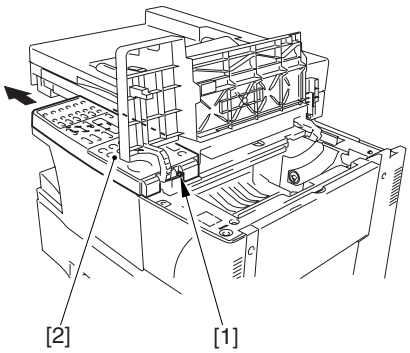


F-9-17

9.3.3.4 Removing the Control Panel

0006-3157

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.

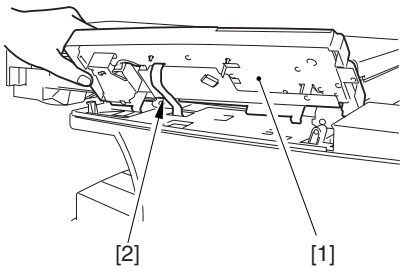


F-9-18

3) Close the cartridge cover.
4) Disconnect the connector [2], and detach the control panel [1].

⚠

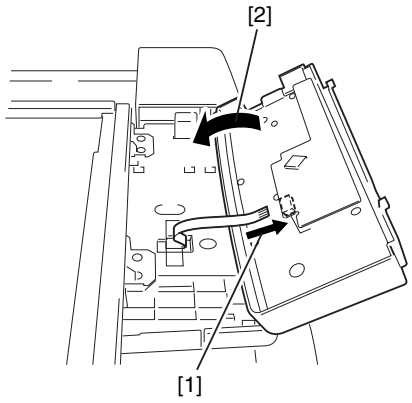
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-9-19

MEMO:

To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.

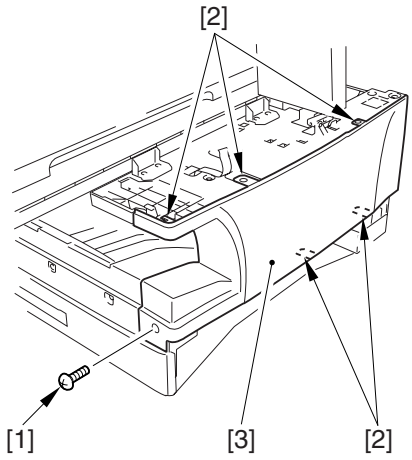


F-9-20

9.3.3.5 Removing the Front Cover

0006-3088

1) Remove the cassette.
2) Remove the screw [1].
3) Free the 5 hooks [2], and detach the front cover [3].

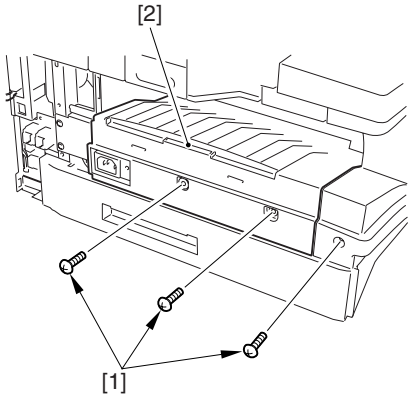


F-9-21

9.3.3.6 Removing the Delivery Cover

0006-3091

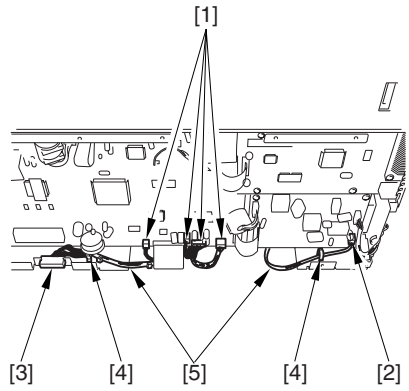
1) Remove the 3 screws [1], and detach the delivery cover [2].



F-9-22

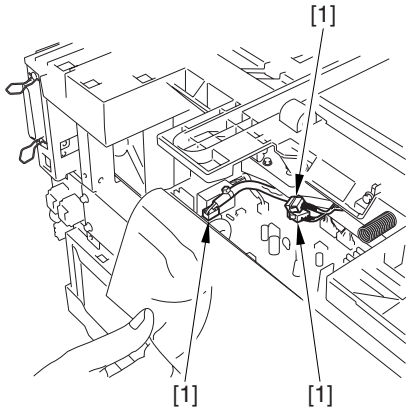
9.3.3.7 Removing the DC Controller PCB 0006-3093

1) Disconnect the 4 connectors [1] used to connect the image processor PCB and the power supply unit.
2) Disconnect the connector [2] used to connect the NCU PCB and the power supply unit.
3) Disconnect the connector [3], and free the harness [4] from the harness guide [5].



F-9-23

4) Disconnect the 3 connectors [1].

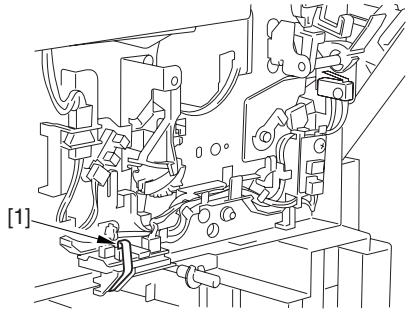


F-9-24

5) Disconnect the connector [1].

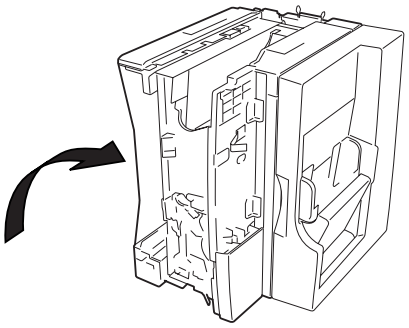
⚠

For installation, fix the flexible cable tightly using a double-sided tape.



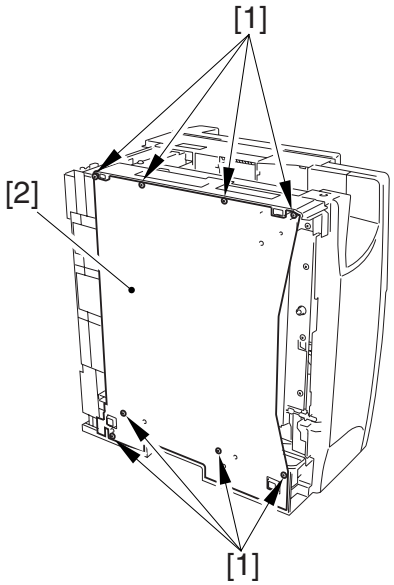
F-9-25

6) Remove the copyboard cover. (If the machine has the ADF, the ADF need not be removed.)
7) Remove the cassette.
8) Place the machine so that its pickup side is at the bottom.



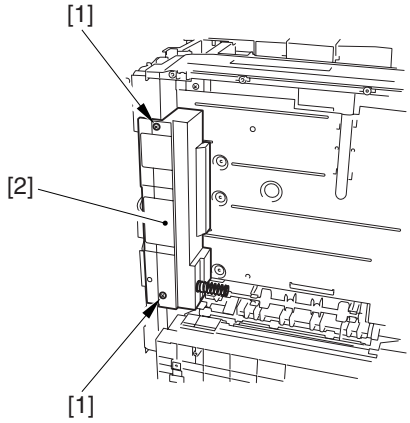
F-9-26

9) Remove the 8 screws [1], and detach the bottom plate [2].



F-9-27

10) Remove the 2 screws [1], and detach the cassette rear cover [2].

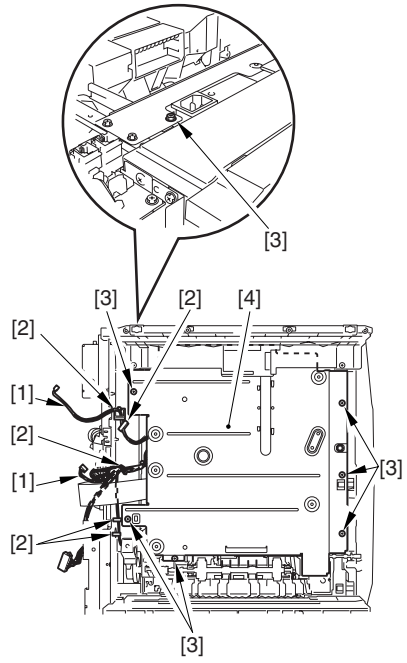


F-9-28

11) Free the harness [1] from the harness guide [2].

12) Remove the 7 screws [3].

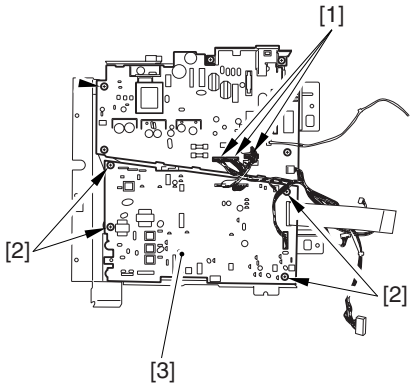
13) Remove the power supply unit [4] by moving, with your finger, the hook of the guide used to route the flexible cable between the sensor relay PCB and the DC controller PCB.



F-9-29

14) Disconnect the 3 connectors [1].

15) Remove the 4 screws [2], and detach the DC controller PCB [3].

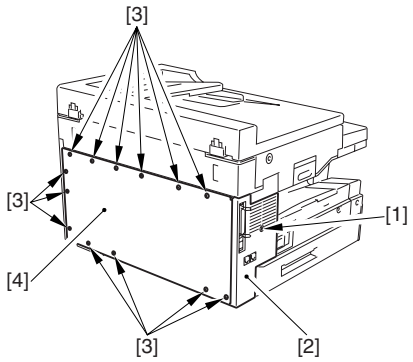


F-9-30

9.3.4 Image Processor PCB

9.3.4.1 Removing the Rear Cover 0006-2891

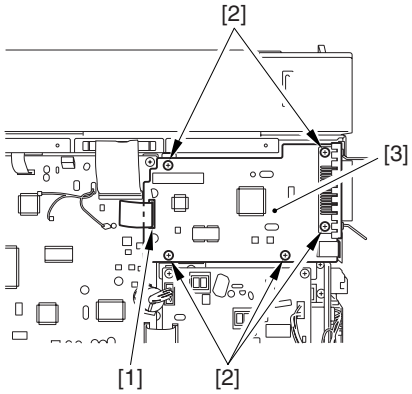
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-9-31

9.3.4.2 Removing the Printer Controller PCB 0006-3169

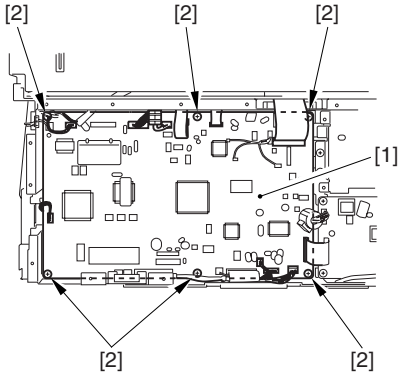
1) Disconnect the connector [1].
2) Remove the 5 screws [2], and detach the printer controller PCB [3].



F-9-32

9.3.4.3 Removing the Image Processor PCB 0006-2892

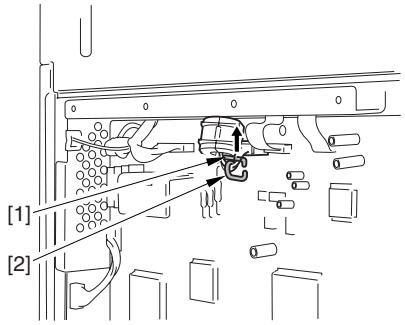
1) Remove the retainer for the flexible cable used to connect the analog processor PCB and the image processor PCB.
2) Remove the core, and disconnect all connectors from the image processor PCB [1].
3) Remove the 6 screws [2], and detach the image processor PCB [1].



F-9-33

⚠

For installation, fasten the core to the upper position with the part [1] and fix the cable with the part [2].

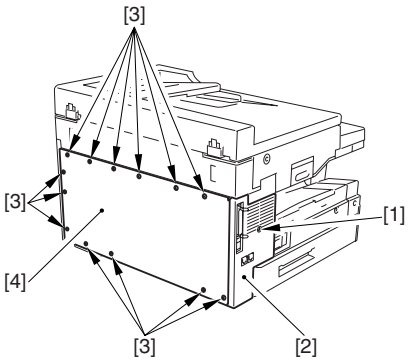


F-9-34

9.3.5 Printer Controller PCB

9.3.5.1 Removing the Rear Cover 0006-3148

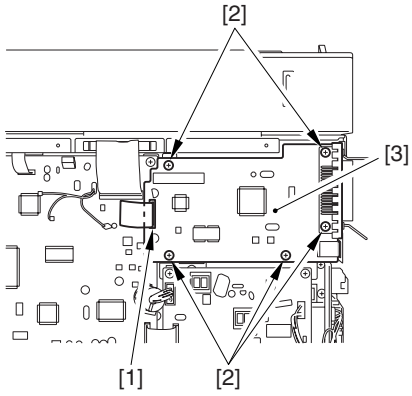
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-9-35

9.3.5.2 Removing the Printer Controller PCB 0006-3149

1) Disconnect the connector [1].
2) Remove the 5 screws [2], and detach the printer controller PCB [3].

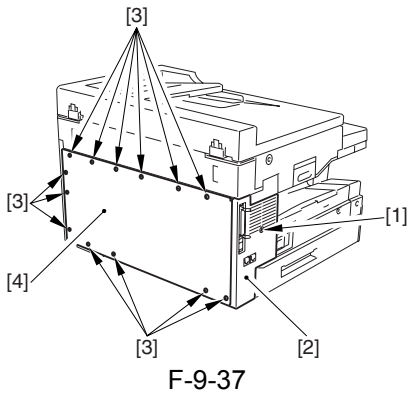


F-9-36

9.3.6 NCU PCB

9.3.6.1 Removing the Rear Cover 0006-3153

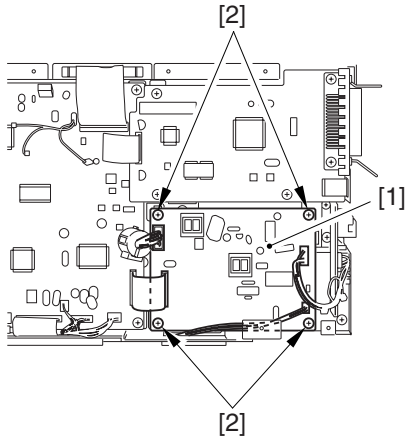
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-9-37

9.3.6.2 Removing the NCU PCB (if equipped with fax functions) 0006-3154

1) Disconnect all connectors form the NCU PCB.
2) Remove the 4 screws [2], and detach the NCU PCB [1].

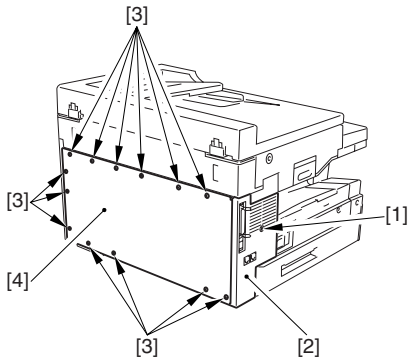


F-9-38

9.3.7 Modular Jack PCB

9.3.7.1 Removing the Rear Cover 0006-3170

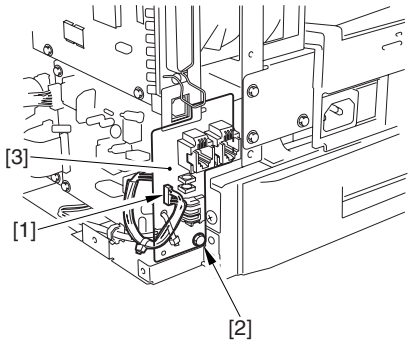
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-9-39

9.3.7.2 Removing the Modular Jack PCB 0006-3172

1) Disconnect the connector [1].
2) Remove the screw [2], and detach the modular jack PCB [3].

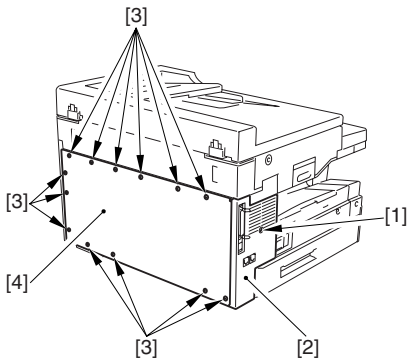


F-9-40

9.3.8 Removing the Printer Power Supply PCB

9.3.8.1 Removing the Rear Cover 0006-3141

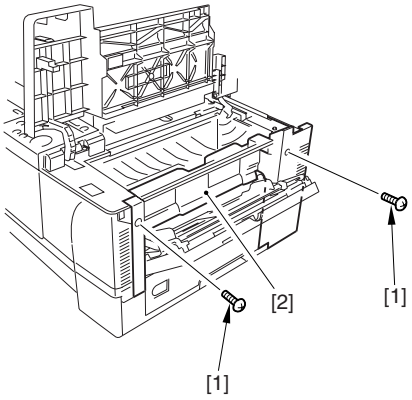
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-9-41

9.3.8.2 Removing the Right Cover 0006-3140

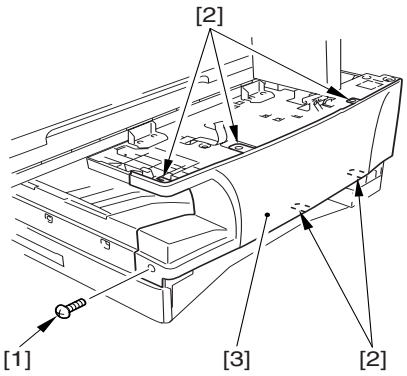
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-9-42

9.3.8.3 Removing the Toner Supply Cover 0006-3142

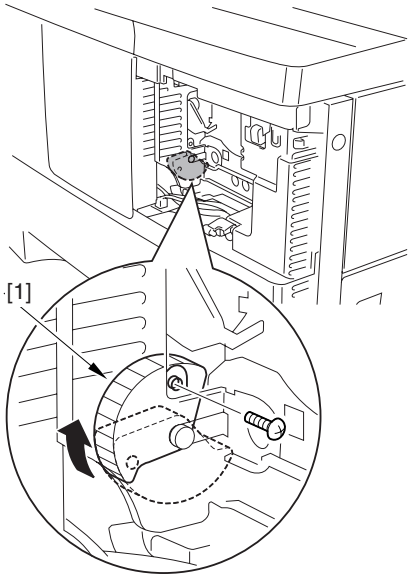
1) Open the toner supply cover [1].
2) Remove the 2 screws [2], and detach the cover [3].
3) Remove the toner supply cover [1].



F-9-43

⚠

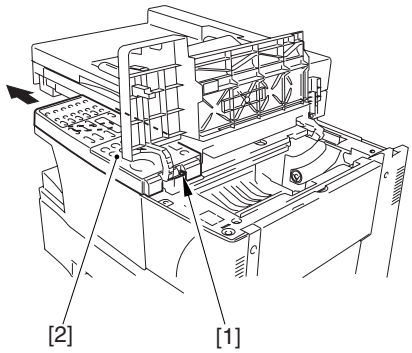
To mount, fit a screw or the like with the gear [1] lifted in place the direction of the arrow as shown to stop; then, attach the toner supply cover, and remove the screw.



F-9-44

9.3.8.4 Removing the Control Panel 0006-3158

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.



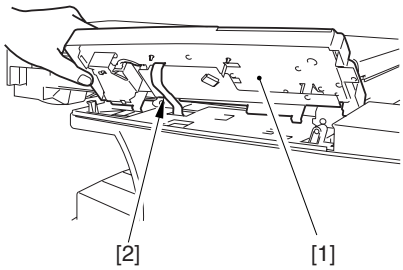
F-9-45

3) Close the cartridge cover.
4) Disconnect the connector [2], and detach the control panel [1].

⚠

To prevent damage to the flexible cable, be sure to lift

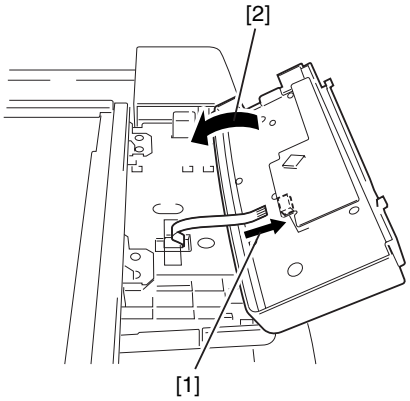
the control panel slightly as shown when disconnecting the connector [2].



F-9-46

MEMO:

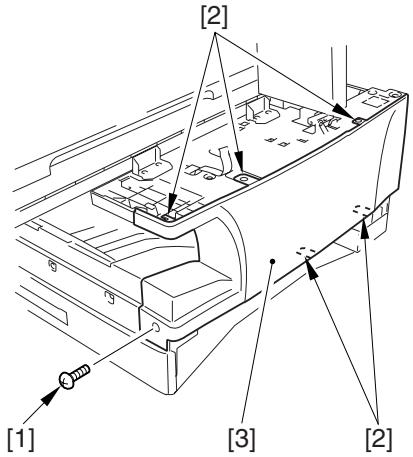
To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



F-9-47

9.3.8.5 Removing the Front Cover 0006-3143

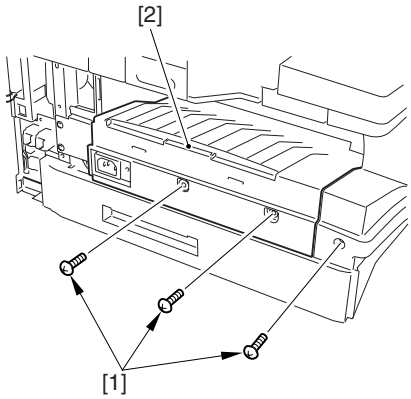
1) Remove the cassette.
2) Remove the screw [1].
3) Free the 5 hooks [2], and detach the front cover [3].



F-9-48

9.3.8.6 Removing the Delivery Cover 0006-3146

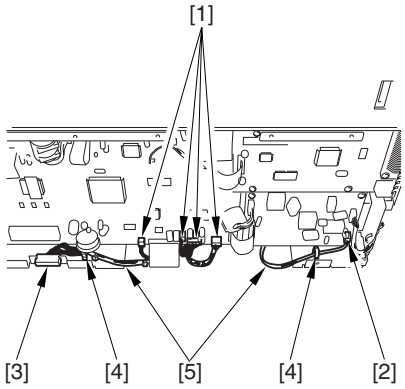
1) Remove the 3 screws [1], and detach the delivery cover [2].



F-9-49

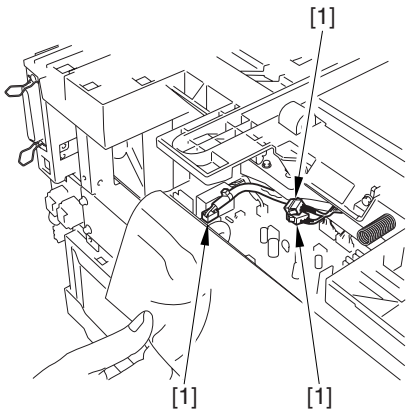
9.3.8.7 Removing the DC Controller PCB 0006-3198

1) Disconnect the 4 connectors [1] used to connect the image processor PCB and the power supply unit.
2) Disconnect the connector [2] used to connect the NCU PCB and the power supply unit.
3) Disconnect the connector [3], and free the harness [4] from the harness guide [5].



F-9-50

4) Disconnect the 3 connectors [1].

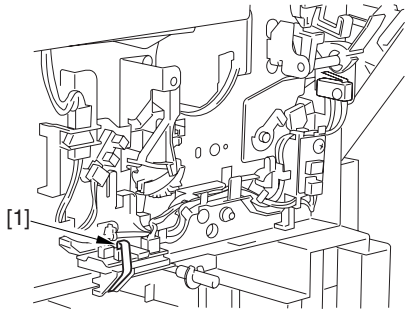


F-9-51

5) Disconnect the connector [1].

⚠

For installation, fix the flexible cable tightly using a double-sided tape.

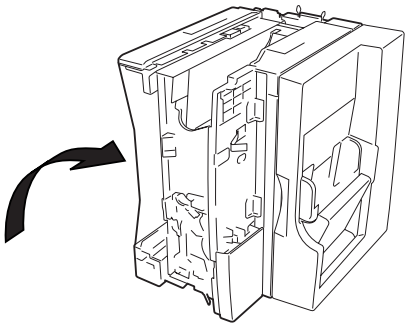


F-9-52

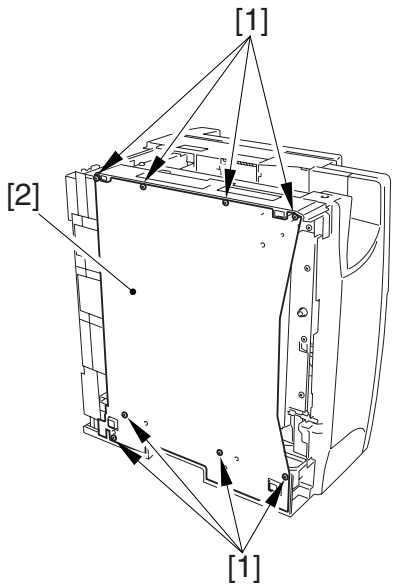
6) Remove the copyboard cover. (If the machine has the ADF, the ADF need not be removed.)

7) Remove the cassette.

8) Place the machine so that its pickup side is at the bottom.

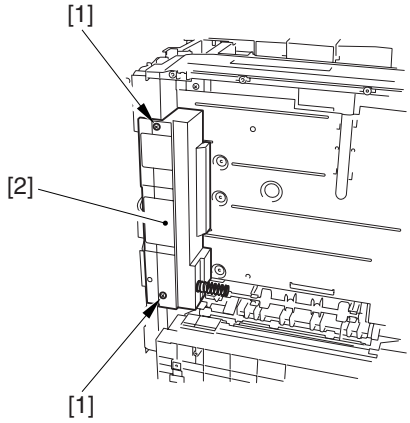

F-9-53

9) Remove the 8 screws [1], and detach the bottom plate [2].



F-9-54

10) Remove the 2 screws [1], and detach the cassette rear cover [2].

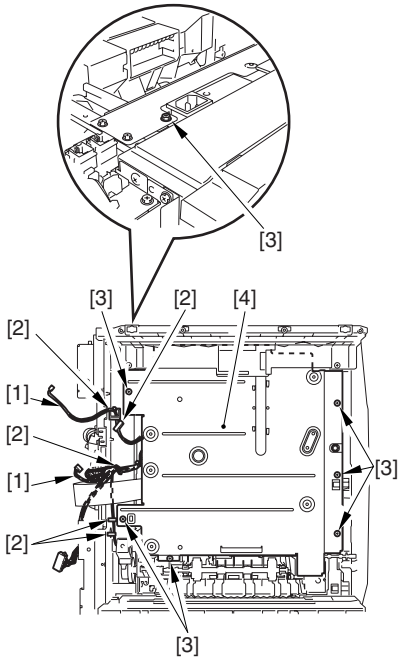


F-9-55

11) Free the harness [1] from the harness guide [2].

12) Remove the 7 screws [3].

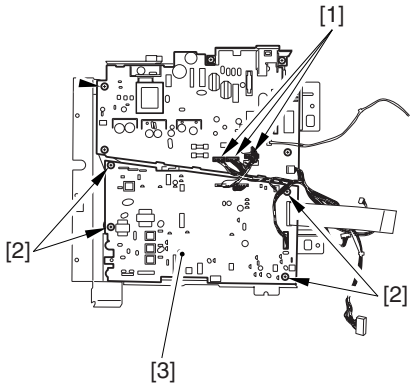
13) Remove the power supply unit [4] by moving, with your finger, the hook of the guide used to route the flexible cable between the sensor relay PCB and the DC controller PCB.



F-9-56

14) Disconnect the 3 connectors [1].

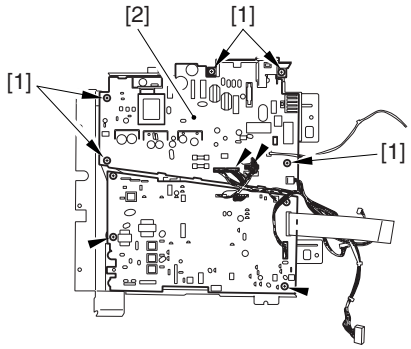
15) Remove the 4 screws [2], and detach the DC controller PCB [3].



F-9-57

9.3.8.8 Removing the Power Supply PCB 0006-3201

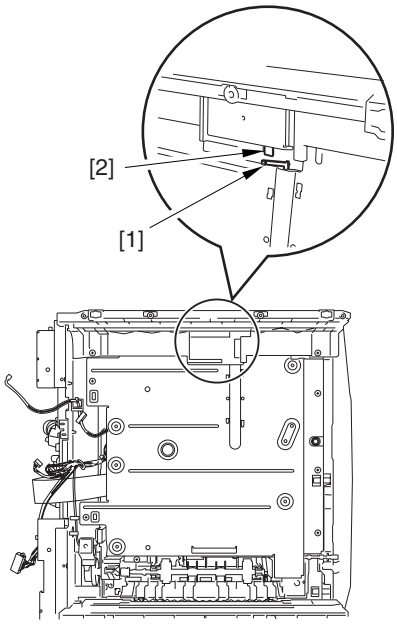
1) Remove the 5 screws [1], and detach the power supply PCB [2].



F-9-58

⚠

When mounting the power supply unit, be sure not to leave out the sensor flag [1] of the LGL paper sensor from the rear of the sensor plate [2].

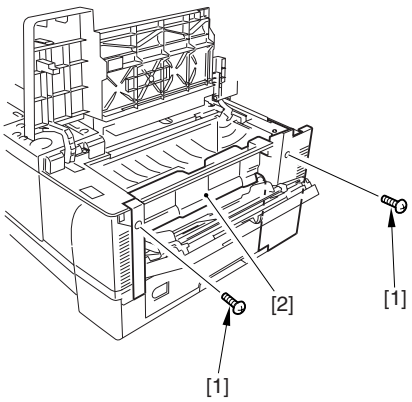


F-9-59

9.3.9 Relay PCB

9.3.9.1 Removing the Right Cover 0006-3210

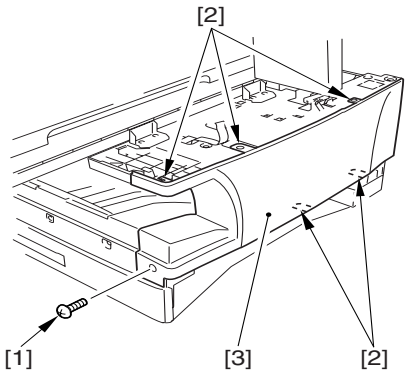
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-9-60

9.3.9.2 Removing the Toner Supply Cover 0006-3213

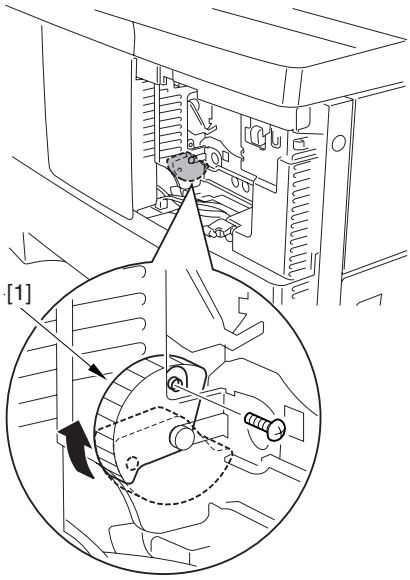
1) Open the toner supply cover [1].
2) Remove the 2 screws [2], and detach the cover [3].
3) Remove the toner supply cover [1].



F-9-61

⚠

To mount, fit a screw or the like with the gear [1] lifted in place the direction of the arrow as shown to stop; then, attach the toner supply cover, and remove the screw.

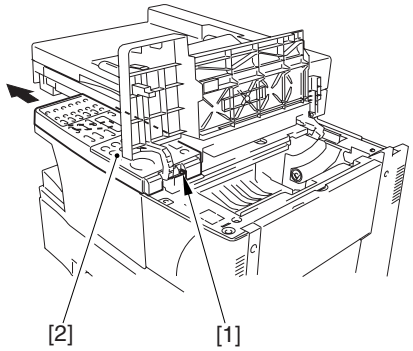


F-9-62

9.3.9.3 Removing the Control Panel

0006-3216

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.

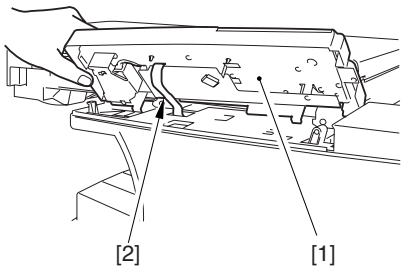


F-9-63

3) Close the cartridge cover.
4) Disconnect the connector [2], and detach the control panel [1].

⚠

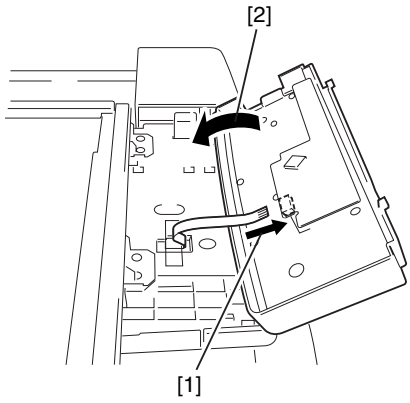
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-9-64

MEMO:

To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.

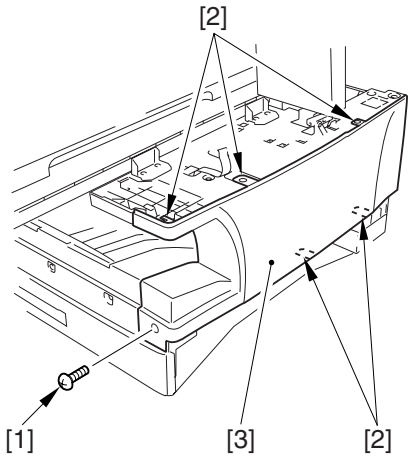


F-9-65

9.3.9.4 Removing the Front Cover

0006-3217

1) Remove the cassette.
2) Remove the screw [1].
3) Free the 5 hooks [2], and detach the front cover [3].

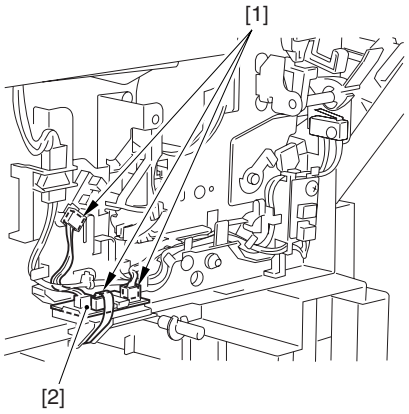


F-9-66

9.3.9.5 Removing the Sensor Relay PCB

0006-3219

1) Remove the 3 connectors [1]. Remove the sensor relay PCB [2].

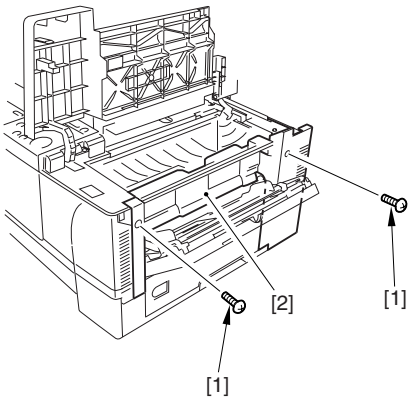


F-9-67

9.3.10 Humidity Sensor

9.3.10.1 Removing the Right Cover 0006-2875

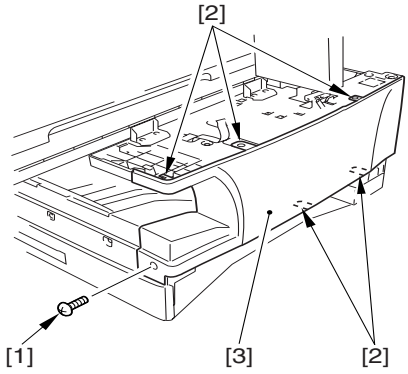
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-9-68

9.3.10.2 Removing the Toner Supply Cover 0006-2878

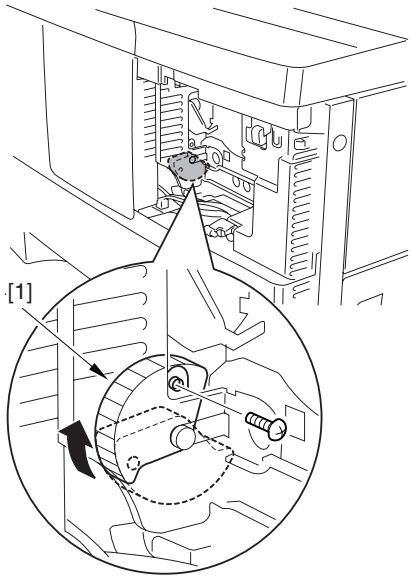
1) Open the toner supply cover [1].
2) Remove the 2 screws [2], and detach the cover [3].
3) Remove the toner supply cover [1].



F-9-69

⚠

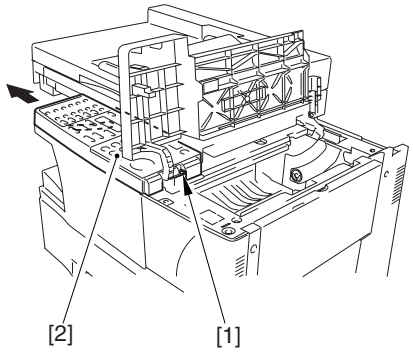
To mount, fit a screw or the like with the gear [1] lifted in place the direction of the arrow as shown to stop; then, attach the toner supply cover, and remove the screw.



F-9-70

9.3.10.3 Removing the Control Panel 0006-3159

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.



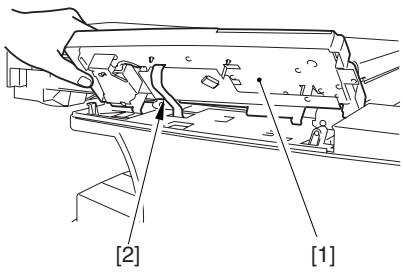
F-9-71

3) Close the cartridge cover.

4) Disconnect the connector [2], and detach the control panel [1].

⚠

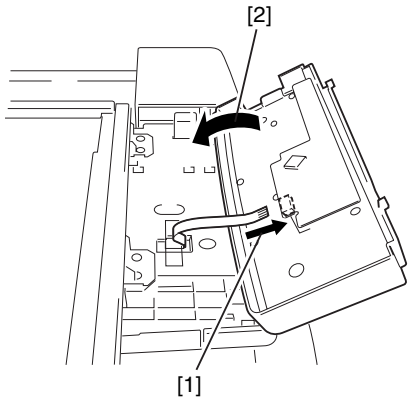
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-9-72

MEMO:

To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



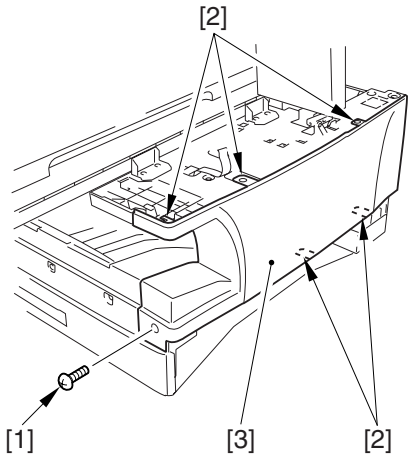
F-9-73

9.3.10.4 Removing the Front Cover 0006-2881

1) Remove the cassette.

2) Remove the screw [1].

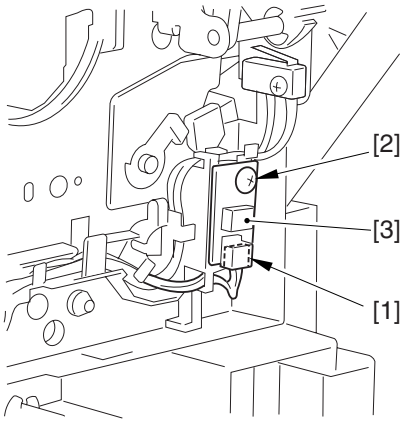
3) Free the 5 hooks [2], and detach the front cover [3].



F-9-74

9.3.10.5 Removing the Humidity Sensor 0006-2882

1) Disconnect the connector [1], and remove the screw [2]; then, detach the humidity sensor [3].

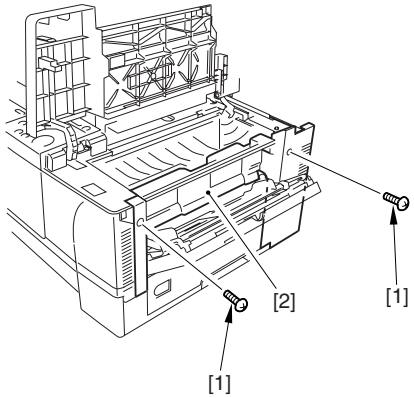


F-9-75

9.3.11 Reader Unit Slide Detecting Switch

9.3.11.1 Removing the Right Cover 0006-2841

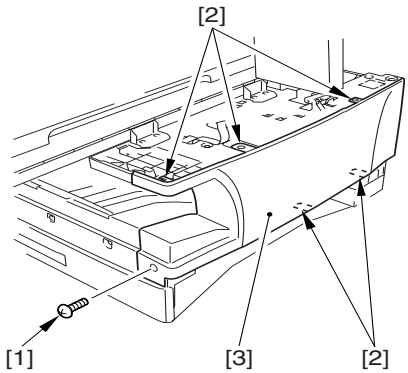
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-9-76

9.3.11.2 Removing the Toner Supply Cover 0006-2842

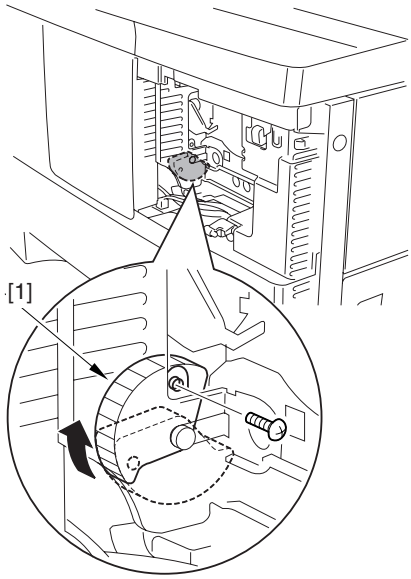
1) Open the toner supply cover [1].
2) Remove the 2 screws [2], and detach the cover [3].
3) Remove the toner supply cover [1].



F-9-77

⚠

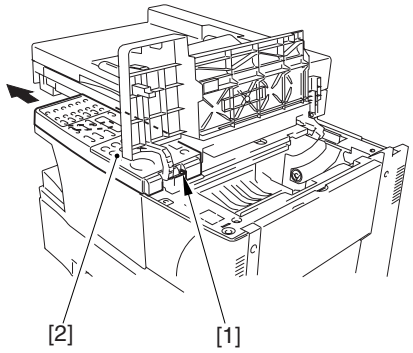
To mount, fit a screw or the like with the gear [1] lifted in place the direction of the arrow as shown to stop; then, attach the toner supply cover, and remove the screw.



F-9-78

9.3.11.3 Removing the Control Panel 0006-3160

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.



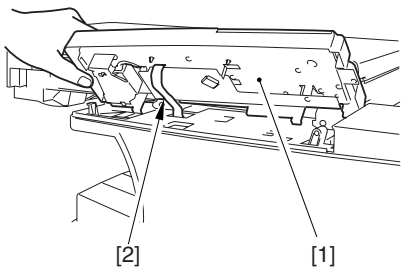
F-9-79

3) Close the cartridge cover.

4) Disconnect the connector [2], and detach the control panel [1].

⚠

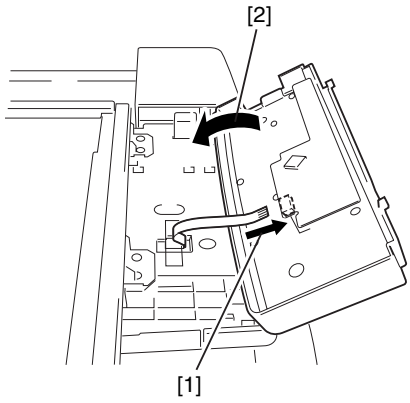
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-9-80

MEMO:

To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



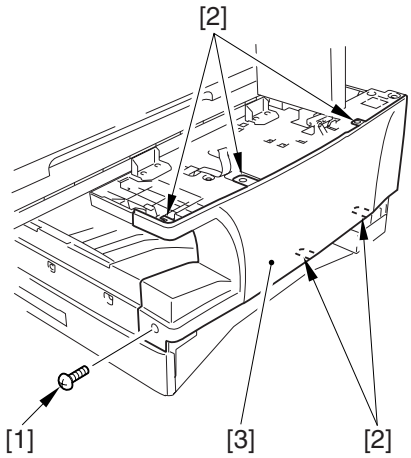
F-9-81

9.3.11.4 Removing the Front Cover 0006-2843

1) Remove the cassette.

2) Remove the screw [1].

3) Free the 5 hooks [2], and detach the front cover [3].

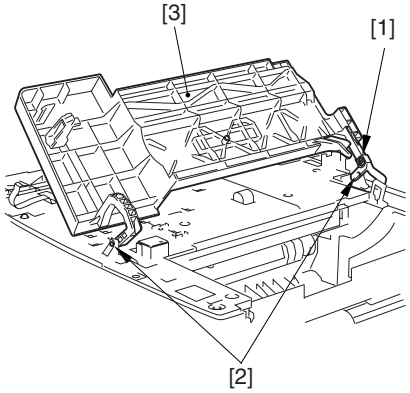


F-9-82

9.3.11.5 Removing the Cartridge Cover 0006-2845

1) Free the hook [1].

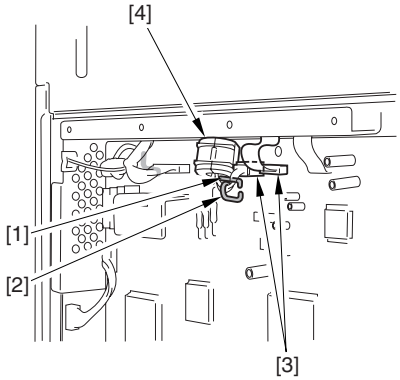
2) Remove the 2 ribs [2], and detach the cartridge cover [3].



F-9-83

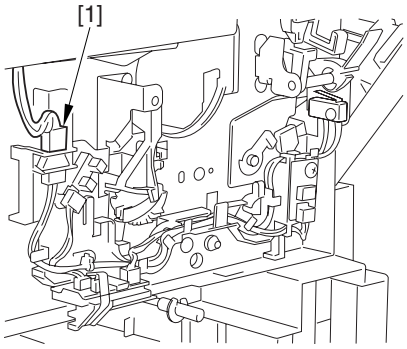
9.3.11.6 Removing the Upper Cover 0006-2847

1) Detach the part [1] holding the core and the part [2] holding the cable.
2) Disconnect the 2 connectors [3] and remove the core [4].



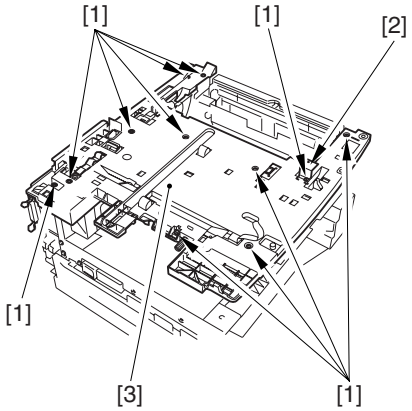
F-9-84

3) Disconnect the connector [1] connecting the leader slide detecting switch and the toner supply cover detecting switch.



F-9-85

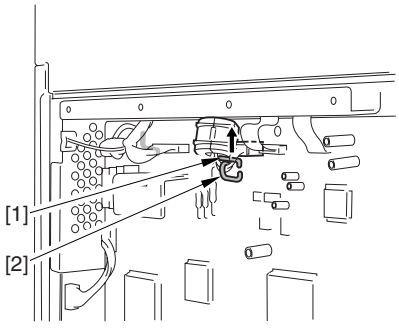
4) Remove the 11 screws [1], and detach the plate [2] and the upper cover [3].



F-9-86

⚠

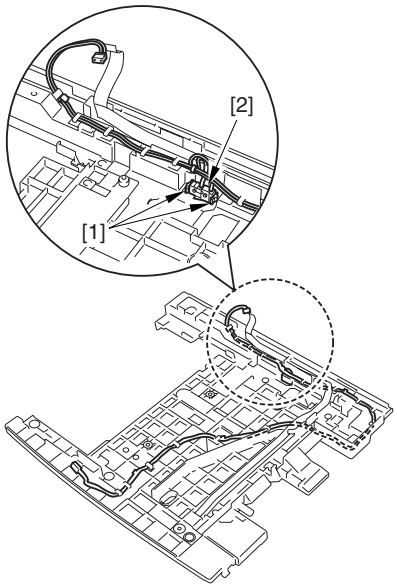
For installation, fasten the core to the upper position with the part [1] and fix the cable with the part [2].



F-9-87

9.3.11.7 Removing the Reader Unit Slide Detecting Switch 0006-2849

1) Free the 2 hooks [1], and detach the reader unit slide detecting switch [2].

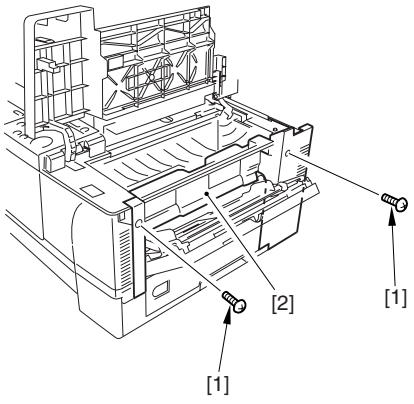


F-9-88

9.3.12 Toner Supply Cover Switch

9.3.12.1 Removing the Right Cover 0006-2851

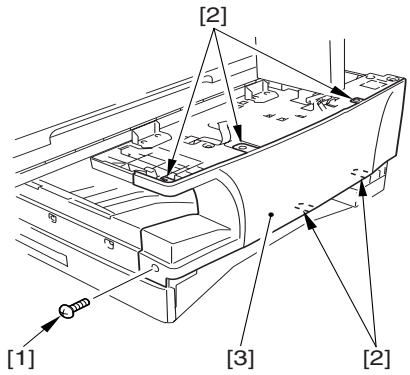
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-9-89

9.3.12.2 Removing the Toner Supply Cover 0006-2852

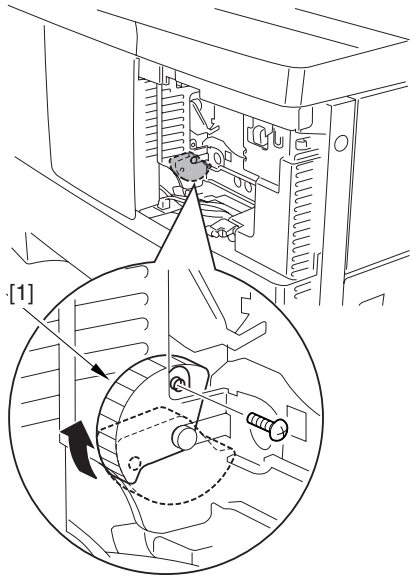
1) Open the toner supply cover [1].
2) Remove the 2 screws [2], and detach the cover [3].
3) Remove the toner supply cover [1].



F-9-90

⚠

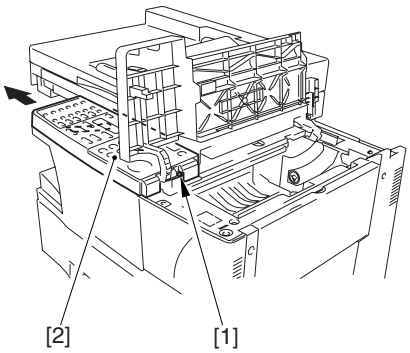
To mount, fit a screw or the like with the gear [1] lifted in place the direction of the arrow as shown to stop; then, attach the toner supply cover, and remove the screw.



F-9-91

9.3.12.3 Removing the Control Panel 0006-3161

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.

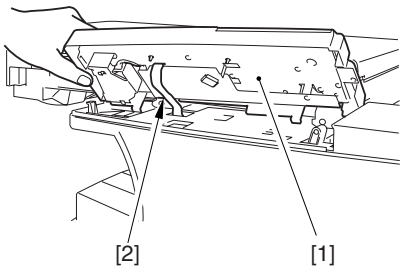


F-9-92

3) Close the cartridge cover.
4) Disconnect the connector [2], and detach the control panel [1].

⚠

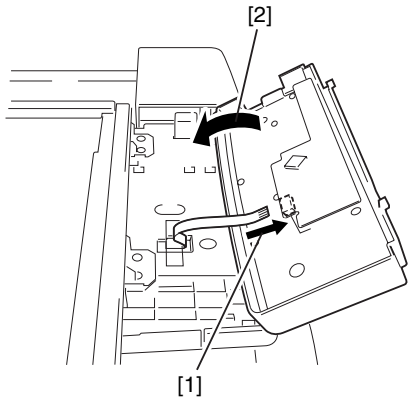
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-9-93

MEMO:

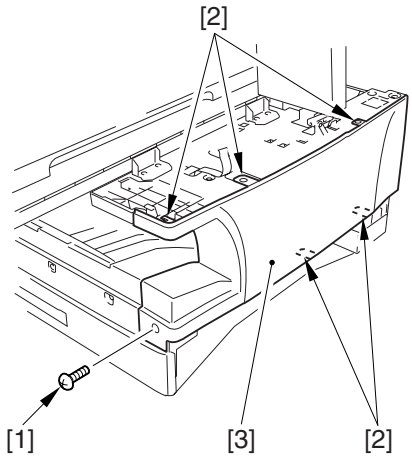
To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



F-9-94

9.3.12.4 Removing the Front Cover 0006-2853

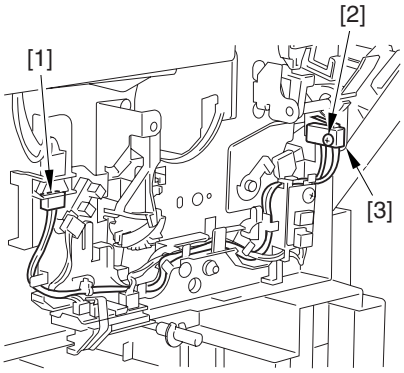
1) Remove the cassette.
2) Remove the screw [1].
3) Free the 5 hooks [2], and detach the front cover [3].



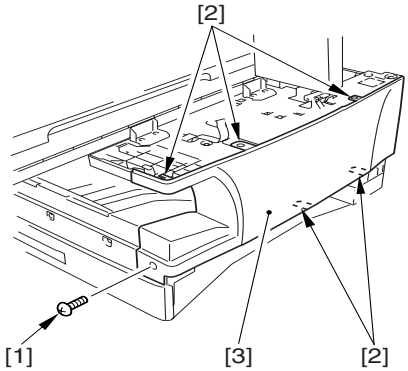
F-9-95

9.3.12.5 Removing the Toner Supply Cover Switch 0006-2854

1) Disconnect the connector [1], and remove the screw [2]; then, remove the toner supply cover open/ closed detecting switch [3].



F-9-96

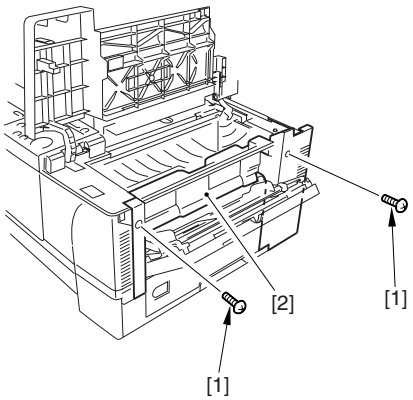


F-9-98

9.3.13 Fans

9.3.13.1 Removing the Right Cover 0006-2826

1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



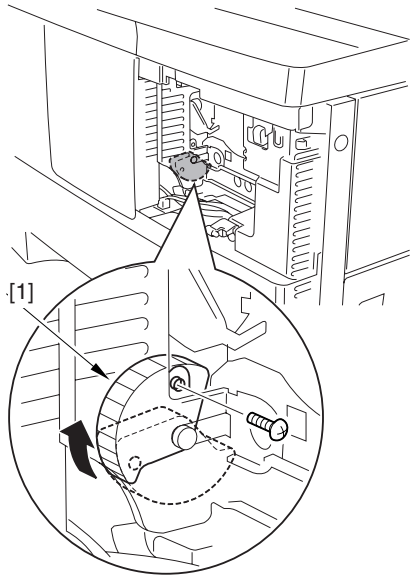
F-9-97

9.3.13.2 Removing the Toner Supply Cover 0006-2829

1) Open the toner supply cover [1].
2) Remove the 2 screws [2], and detach the cover [3].
3) Remove the toner supply cover [1].

⚠

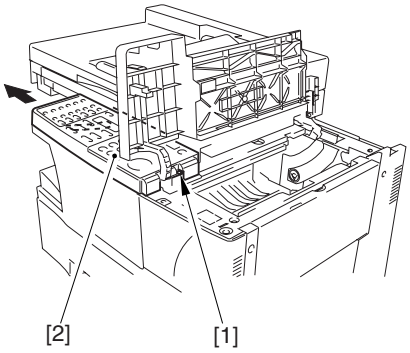
To mount, fit a screw or the like with the gear [1] lifted in place the direction of the arrow as shown to stop; then, attach the toner supply cover, and remove the screw.



F-9-99

9.3.13.3 Removing the Control Panel 0006-3162

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.



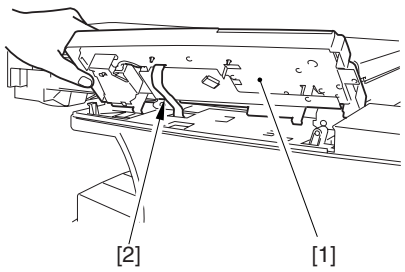
F-9-100

3) Close the cartridge cover.

4) Disconnect the connector [2], and detach the control panel [1].

⚠

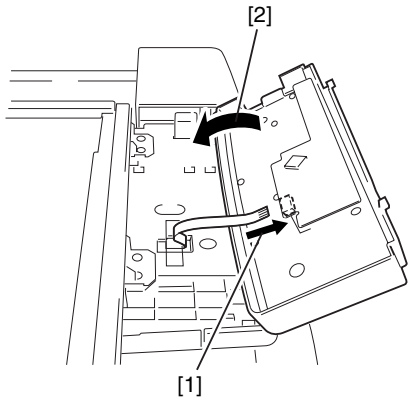
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-9-101

MEMO:

To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



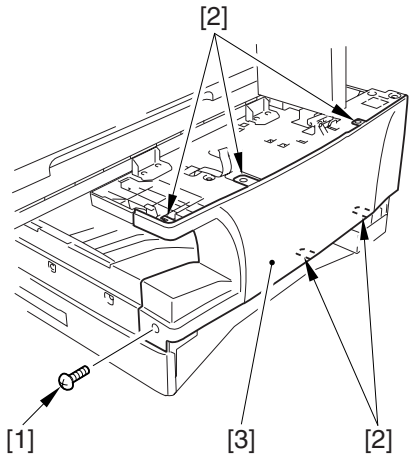
F-9-102

9.3.13.4 Removing the Front Cover 0006-2830

1) Remove the cassette.

2) Remove the screw [1].

3) Free the 5 hooks [2], and detach the front cover [3].

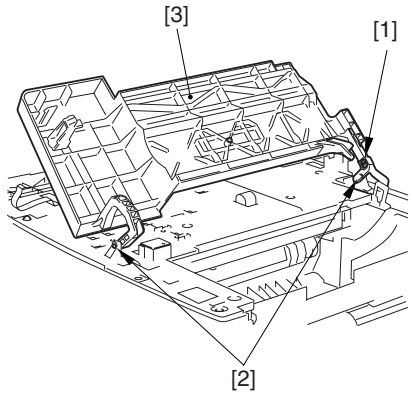


F-9-103

9.3.13.5 Removing the Cartridge Cover 0006-2846

1) Free the hook [1].

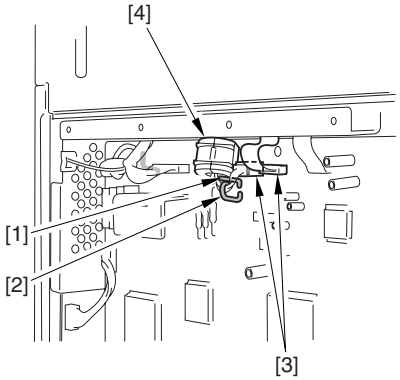
2) Remove the 2 ribs [2], and detach the cartridge cover [3].



F-9-104

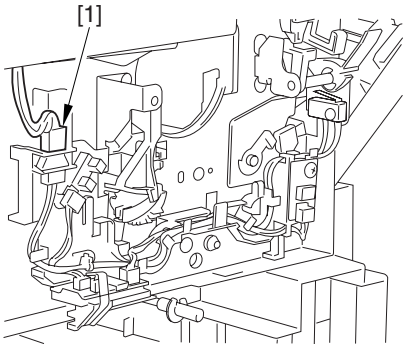
9.3.13.6 Removing the Upper Cover 0006-2848

1) Detach the part [1] holding the core and the part [2] holding the cable.
2) Disconnect the 2 connectors [3] and remove the core [4].



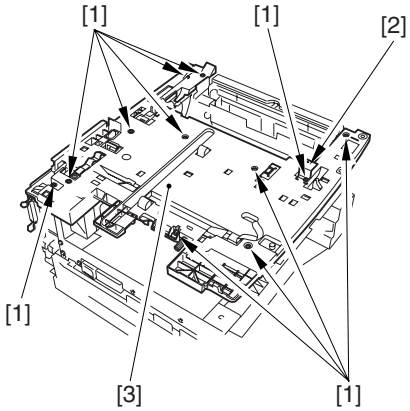
F-9-105

3) Disconnect the connector [1] connecting the leader slide detecting switch and the toner supply cover detecting switch.



F-9-106

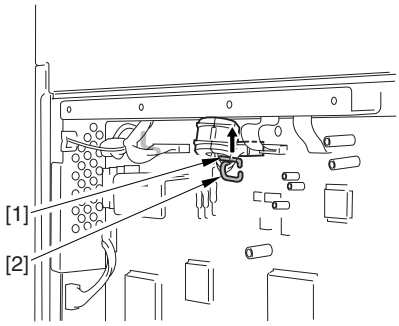
4) Remove the 11 screws [1], and detach the plate [2] and the upper cover [3].



F-9-107

⚠

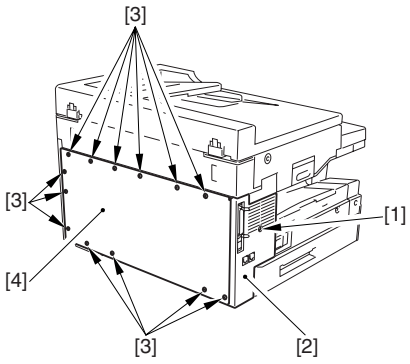
For installation, fasten the core to the upper position with the part [1] and fix the cable with the part [2].



F-9-108

9.3.13.7 Removing the Rear Cover 0006-3166

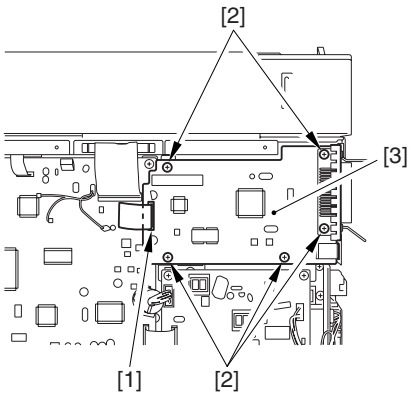
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-9-109

9.3.13.8 Removing the Printer Controller PCB 0006-3167

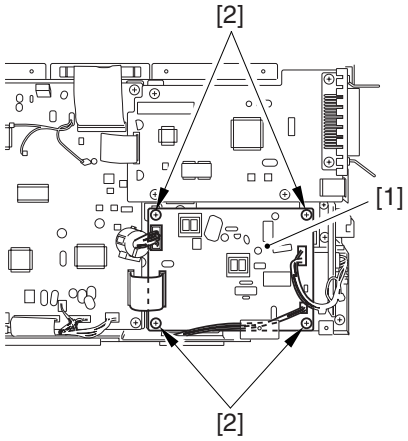
1) Disconnect the connector [1].
2) Remove the 5 screws [2], and detach the printer controller PCB [3].



F-9-110

9.3.13.9 Removing the NCU PCB (if equipped with fax functions) 0006-3168

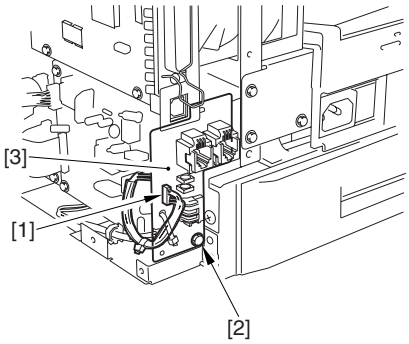
1) Disconnect all connectors form the NCU PCB.
2) Remove the 4 screws [2], and detach the NCU PCB [1].



F-9-111

9.3.13.10 Removing the Modular Jack PCB 0006-3174

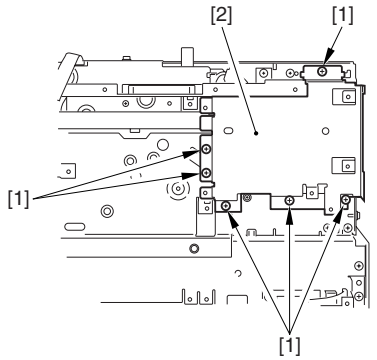
1) Disconnect the connector [1].
2) Remove the screw [2], and detach the modular jack PCB [3].



F-9-112

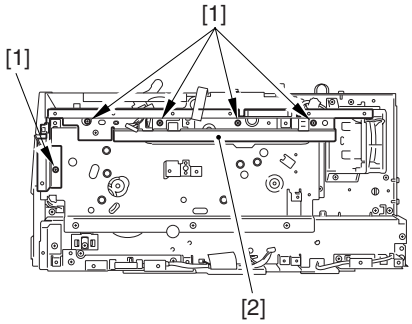
9.3.13.11 Remove the Fan 0006-2832

1) Remove the 6 screws [1], and detach the plate [2].



F-9-113

2) Remove the 5 screws [1], and detach the plate [2].

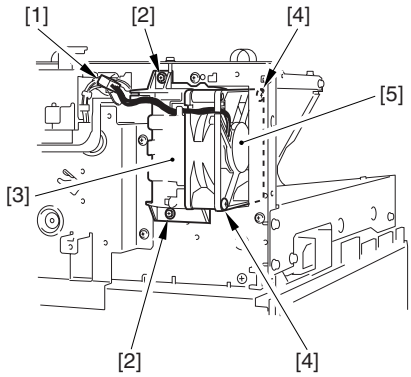


F-9-114

3) Disconnect the connector [1].

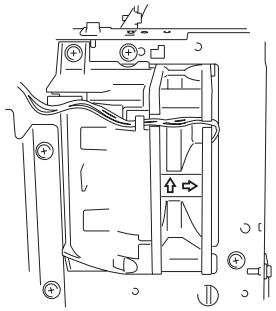
4) Remove the 2 screws [2], and detach the fan unit [3].

5) Remove the 2 screws [4], and detach the fan [5].



F-9-115

When mounting the fan, pay attention to the direction of its current.



F-9-116

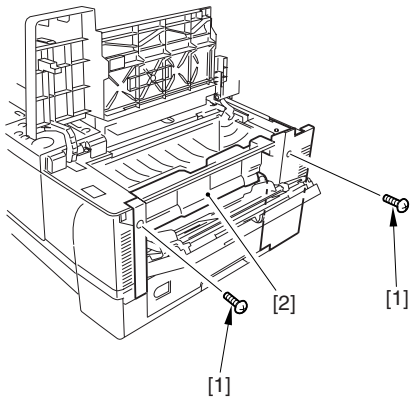
9.3.14 Motor of Main Drive Assembly

9.3.14.1 Removing the Right Cover 0006-3068

1) Slide the reader unit, and open the cartridge cover.

2) Open the manual feed tray.

3) Remove the 2 screws [1], and detach the right cover [2].

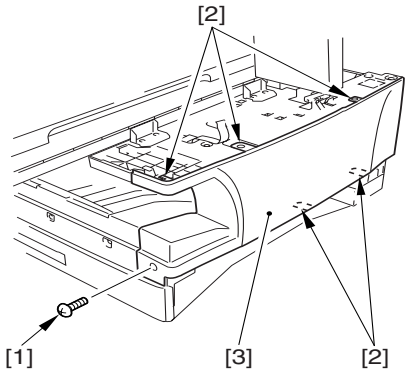


F-9-117

9.3.14.2 Removing the Toner Supply Cover 0006-3071

1) Open the toner supply cover [1].

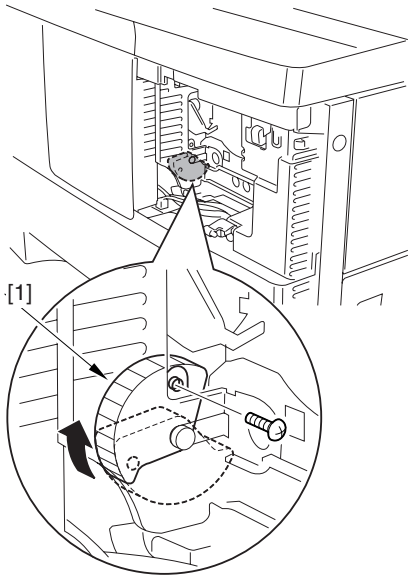
2) Remove the 2 screws [2], and detach the cover [3].
3) Remove the toner supply cover [1].



F-9-118

⚠

To mount, fit a screw or the like with the gear [1] lifted in place the direction of the arrow as shown to stop; then, attach the toner supply cover, and remove the screw.

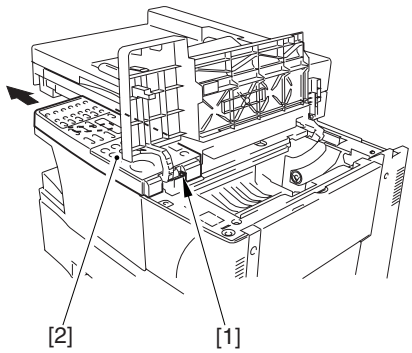


F-9-119

9.3.14.3 Removing the Control Panel

0006-3163

1) Slide the reader unit, and open the cartridge cover.
2) Remove the screw [1], and slide the control panel [2] to the left.

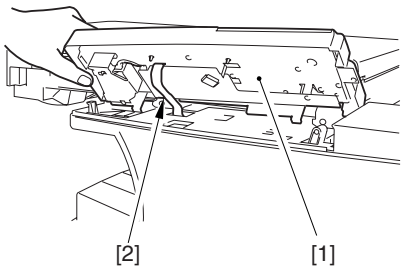


F-9-120

3) Close the cartridge cover.
4) Disconnect the connector [2], and detach the control panel [1].

⚠

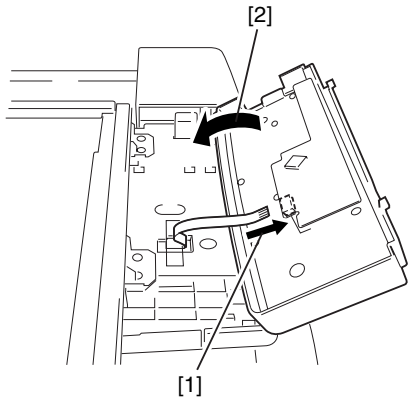
To prevent damage to the flexible cable, be sure to lift the control panel slightly as shown when disconnecting the connector [2].



F-9-121

MEMO:

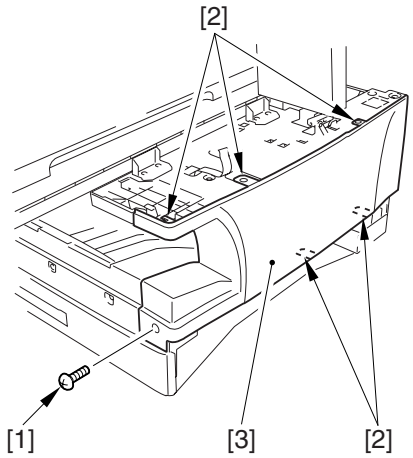
To mount the control panel, turn it over as shown in below figure, and connect the connector [1]; then, turn back over [2] the control panel to facilitate the work.



F-9-122

9.3.14.4 Removing the Front Cover 0006-3072

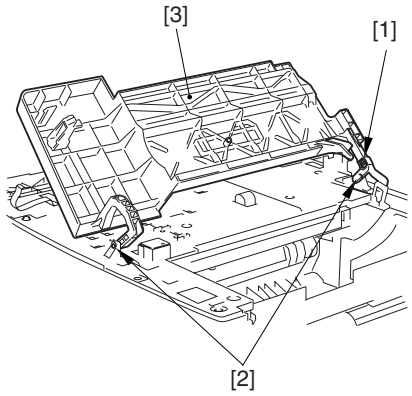
1) Remove the cassette.
2) Remove the screw [1].
3) Free the 5 hooks [2], and detach the front cover [3].



F-9-123

9.3.14.5 Removing the Cartridge Cover 0006-3073

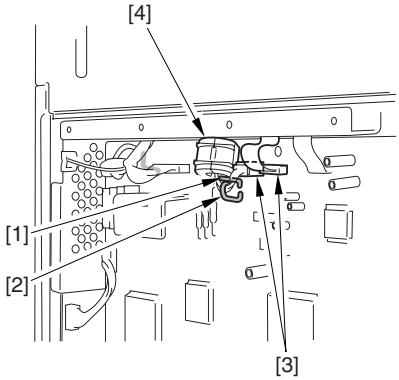
1) Free the hook [1].
2) Remove the 2 ribs [2], and detach the cartridge cover [3].



F-9-124

9.3.14.6 Removing the Upper Cover 0006-3074

1) Detach the part [1] holding the core and the part [2] holding the cable.
2) Disconnect the 2 connectors [3] and remove the core [4].



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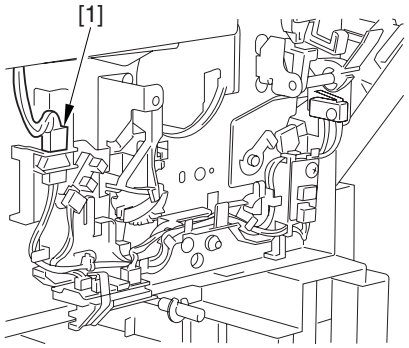
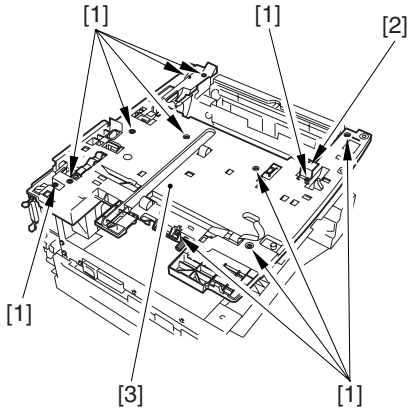
3) Disconnect the connector [1] connecting the leader slide detecting switch and the toner supply cover detecting switch.



F-9-126

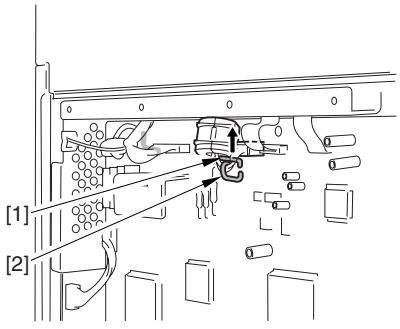
4) Remove the 11 screws [1], and detach the plate [2] and the upper cover [3].



F-9-127

⚠

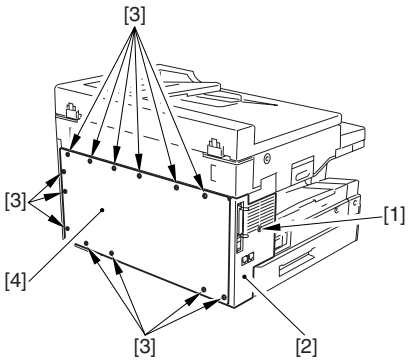
For installation, fasten the core to the upper position with the part [1] and fix the cable with the part [2].



F-9-128

9.3.14.7 Removing the Rear Cover 0006-3075

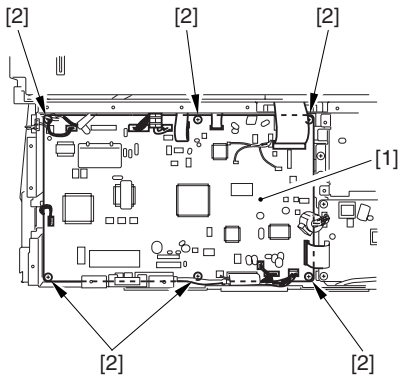
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-9-129

9.3.14.8 Removing the Image Processor PCB 0006-3077

1) Remove the retainer for the flexible cable used to connect the analog processor PCB and the image processor PCB.
2) Remove the core, and disconnect all connectors from the image processor PCB [1].
3) Remove the 6 screws [2], and detach the image processor PCB [1].

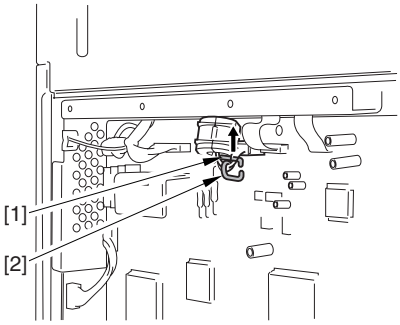


F-9-130

⚠

For installation, fasten the core to the upper position

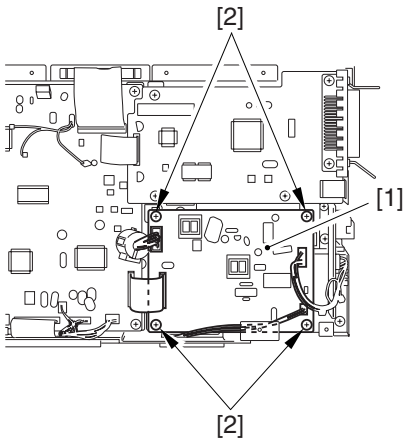
with the part [1] and fix the cable with the part [2].



F-9-131

9.3.14.9 Removing the NCU PCB (if equipped with fax functions) 0006-3165

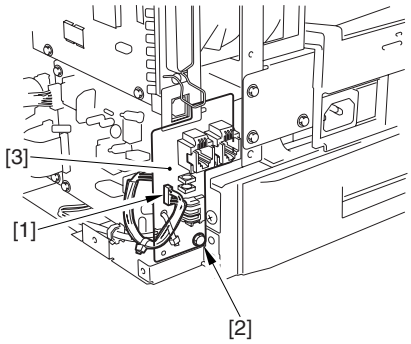
1) Disconnect all connectors form the NCU PCB.
2) Remove the 4 screws [2], and detach the NCU PCB [1].



F-9-132

9.3.14.10 Removing the Modular Jack PCB 0006-3175

1) Disconnect the connector [1].
2) Remove the screw [2], and detach the modular jack PCB [3].



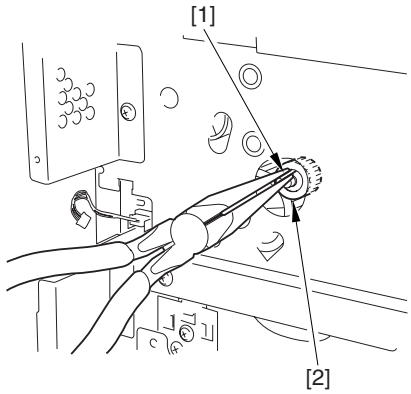
F-9-133

9.3.14.11 Removing the Main Motor Unit 0006-3079

1) Pick the hook [1] with long nose pliers or the like, and detach the registration roller gear [2].

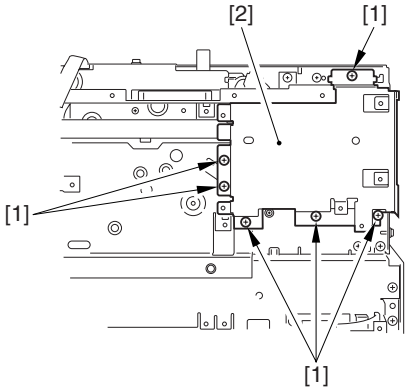
⚠

Take care not to break the claw when removing the gear.



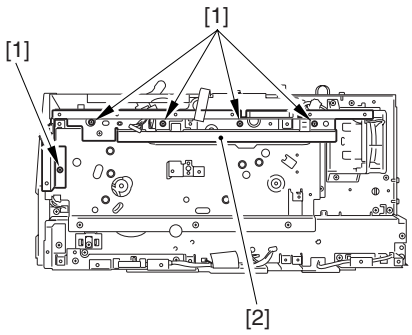
F-9-134

2) Remove the 6 screws [1], and detach the plate [2].



F-9-135

5) Remove the 5 screws [1], and detach the plate [2].



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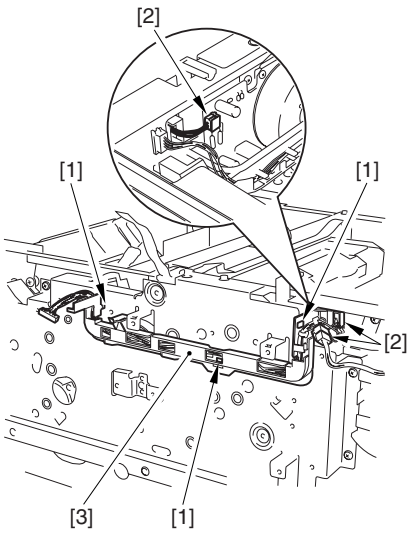
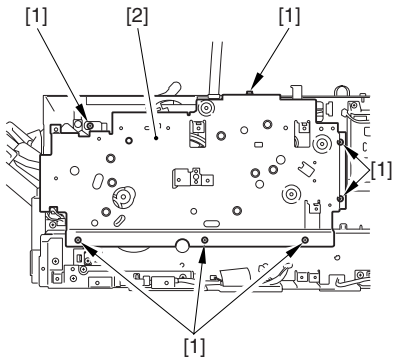
4) Free the 3 hooks [1].

5) Disconnect the 3 connectors [2], and detach the harness [3].



F-9-137

6) Remove the 7 screws [1], and detach the main motor unit [2].



F-9-138

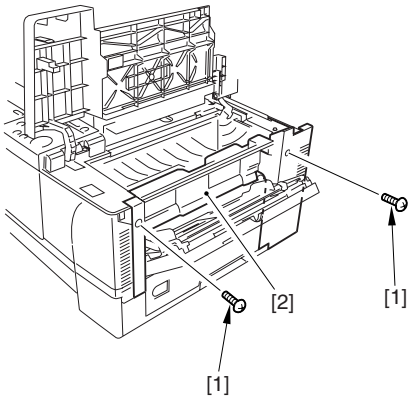
9.3.15 Right Door

9.3.15.1 Removing the Right Cover 0006-3324

1) Slide the reader unit, and open the cartridge cover.

2) Open the manual feed tray.

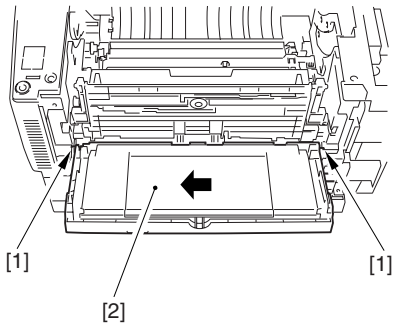
3) Remove the 2 screws [1], and detach the right cover [2].



F-9-139

9.3.15.2 Removing the Manual Feed Tray (lower) 0006-3325

1) Remove the 2 ribs [1], and slide the manual feed tray (lower) [2] to detach.

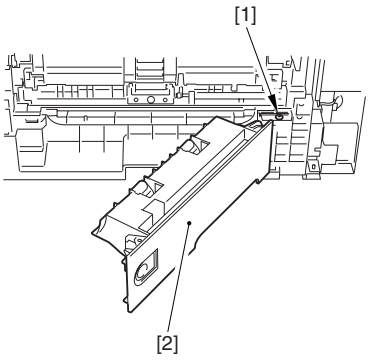


F-9-140

9.3.15.3 Removing the Right Door

0006-2442

1) Remove the screw [1], and detach the right door [2].



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10.1 Basic Construcion

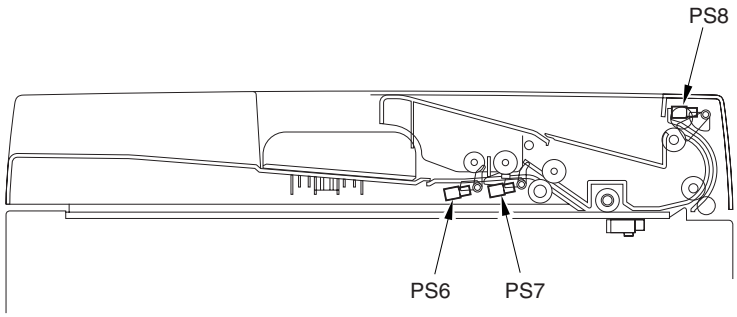
10.1.1 Outline

0006-3574

The ADF is a feeding device used exclusively for stream reading, and its series of operations (original pickup, feeding, delivery) is performed using the drive of the ADF motor (M3).
An original picked from the original placement assembly is controlled so that its movement will match the read start timing of the host machine's contact sensor. Then, the original is moved as far as stream reading position, read by the contact sensor (for collection of analog image data), and sent to the delivery assembly.
The ADF has 3 sensors to monitor the state of the original. The names and the functions of the sensors are as follows:

T-10-1

Symbol	Sensor	Function
PS6	Original sensor	Detects the presence/absence of an original in the original placement assembly.
PS7	Registration sensor	Detects the timing at which the leading edge of an original is made to arch at the ADF registration roller.
PS8	Original delivery sensor	Monitors the movement of the original in the original delivery assembly.



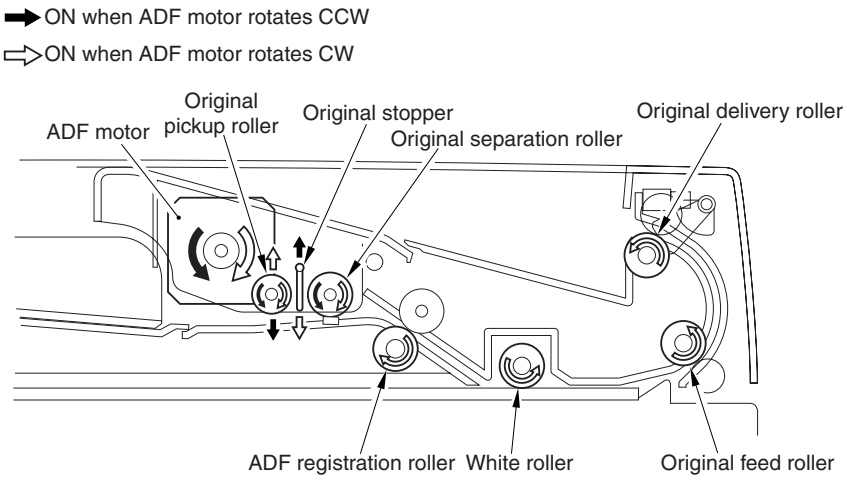
F-10-1

10.2 Basic Operation

10.2.1 Picking Up and Moving Originals

0006-3651

The ADF picks up and moves originals under the control of the CPU on the host machine's image processor PCB and using the drive of the ADF motor (M3).
When the host machine's Start key is pressed, with an original placed in the original tray, the ADF motor starts to rotate counterclockwise and the pickup roller moves down to move up the original stopper. At the same time, the original pickup roller and the original separation roller start to rotate.
When the original pickup roller and the original separation roller rotate, a single original is separated by the work of the original separation roller and the original separation pad, and its leading edge is detected by the registration sensor. The original is then sent as far as the ADF registration roller; a specific period of time after the registration sensor detects the leading edge, the ADF motor starts to rotate clockwise to move up the original pickup roller and move down the original stopper.
The ADF motor rotates clockwise to rotate the ADF registration roller, white roller, original feed roller, and original delivery roller to move and deliver the original.

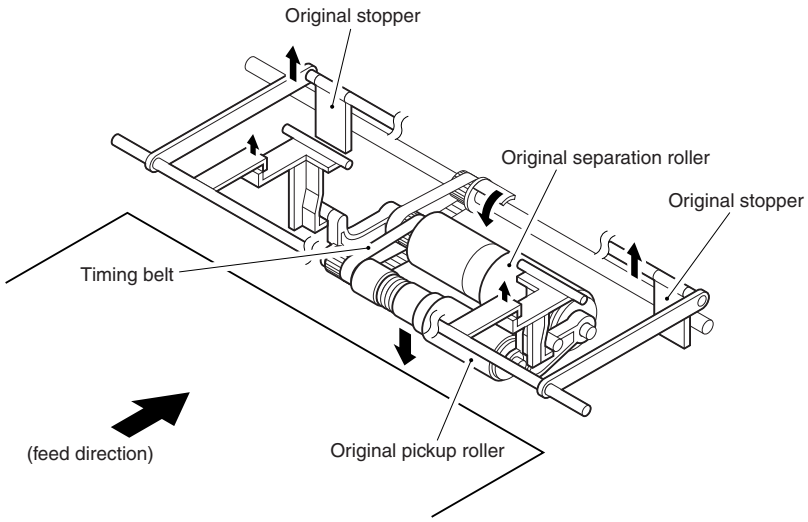


F-10-2

10.2.2 Moving Down the Original Pickup Roller and Moving Up the Original Stopper

0006-3746

The original pickup roller is kept in up position during standby, thereby ensuring a gap used to accommodate a stack of originals. The original stopper is kept in down position during standby to prevent the original from sliding too far inside the machine when it is placed.
When the ADF motor (M3) rotates counterclockwise to start original pickup operation, the drive of the timing belt moves down the original pickup roller and, at the same time, the original stopper starts to move up, causing an original to be picked up and sent inside the machine.


Original stopper
Original separation roller
Original stopper
Timing belt
(feed direction)
Original pickup roller

F-10-3

10.3 Detection Jams

10.3.1 Outline

0006-4279

The ADF is equipped with 2 sensors to detect original jams. The CPU on the host machine's image processor PCB checks the presence of paper over the sensor at such times as stored in advance; if it identifies a jam, it turns off the ADF motor (M3) and indicates a jam message on the LCD.

10.3.2 Types of Jams

0006-3754

The machine identifies a jam as one of 6 types. When a jam has occurred, be sure to remove it, open and then close the ADF, place the original once again, and start over.

a.Registration Sensor Delay Jam
After separation is started, the registration sensor (PS7) does not detect the leading edge of paper within a specific period of time.

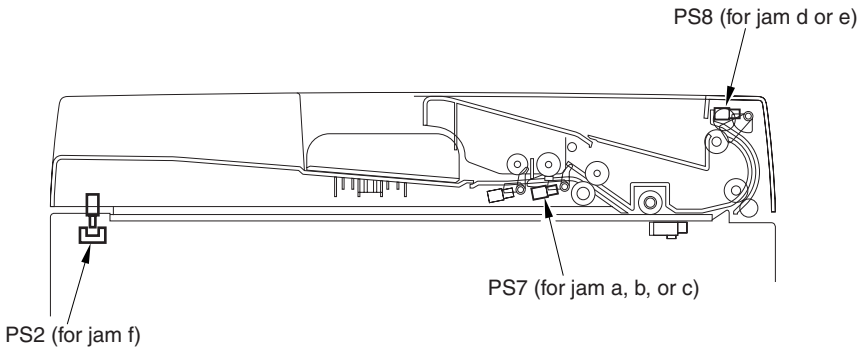
b. Registration Sensor Stationary Jam
After the registration sensor (PS7) detects the leading edge of paper, it detects the trailing edge of paper before a specific period of time.

c. Original size error
After the registration sensor (PS7) detects a original leading edge of paper, it detects the trailing edge of paper before a specific period of time.

d.Original Delivery Sensor Delay Jam
After the registration sensor (PS7) detects the leading edge of paper, the original delivery sensor (PS8) does not detect the leading edge of paper within a specific period of time.

e. Delivery Sensor Stationary Jam
After the registration sensor (PS7) detects the trailing edge of paper, the original delivery sensor (PS8) does not detect the trailing edge of paper within a specific period of time.

f. ADF Open Jam
While an original is being moved, the ADF (copyboard cover) open/close sensor (PS2) detects a condition indicating that the ADF is open.



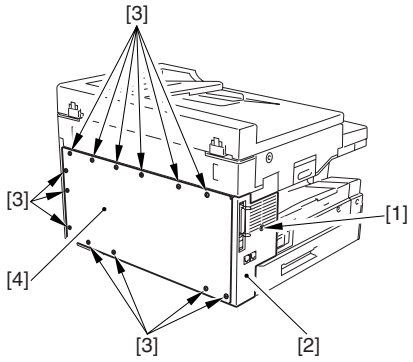
F-10-4

10.4 Parts Replacement Procedure

10.4.1 ADF

10.4.1.1 Removing the Rear Cover 0006-3830

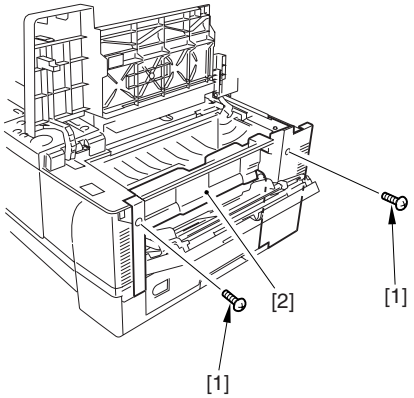
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-5

10.4.1.2 Removing the Right Cover 0006-3832

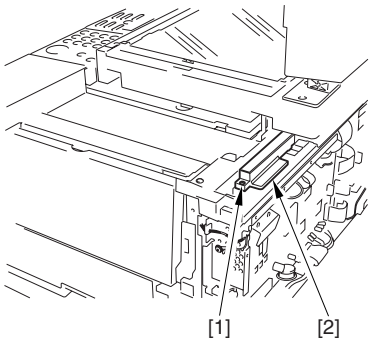
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-6

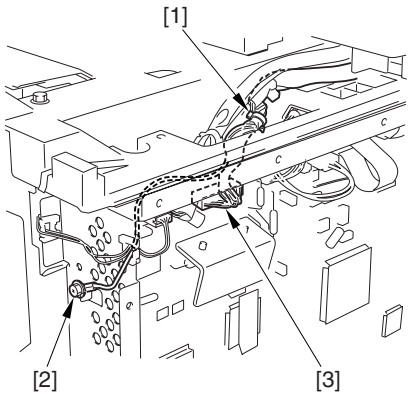
10.4.1.3 Removing the ADF 0006-3835

1) Remove the screw [1], and detach the ADF harness cover [2].



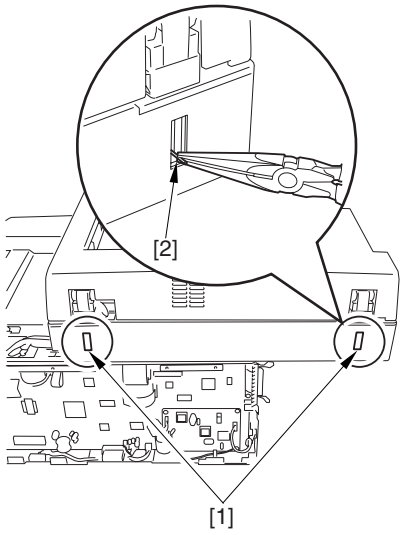
F-10-7

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



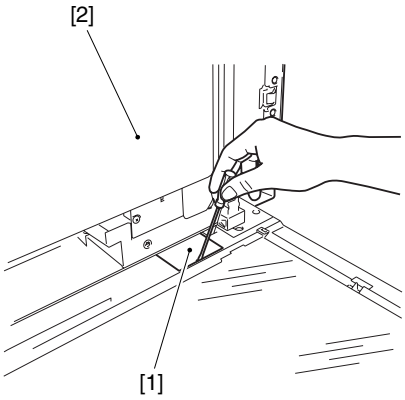
F-10-8

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



F-10-9

6) Return the reader unit to its initial position.
7) Open the ADF.
8) Using a flat-blade screwdriver, remove the cover [1].
9) Detach the ADF [2] from the host machine.



F-10-10

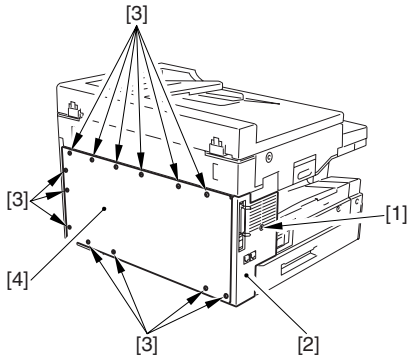
⚠

Take care so that no part will become trapped by harness of the ADF.

10.4.2 ADF Drive Unit

10.4.2.1 Removing the Rear Cover 0006-3888

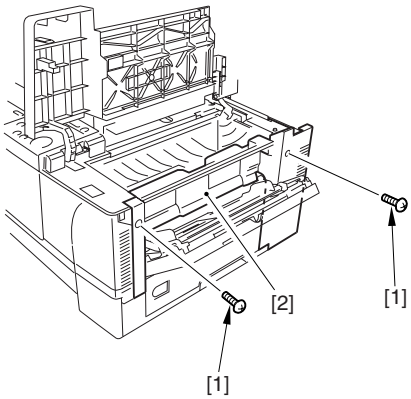
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-11

10.4.2.2 Removing the Right Cover 0006-3890

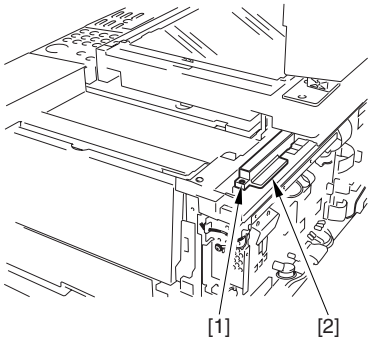
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-12

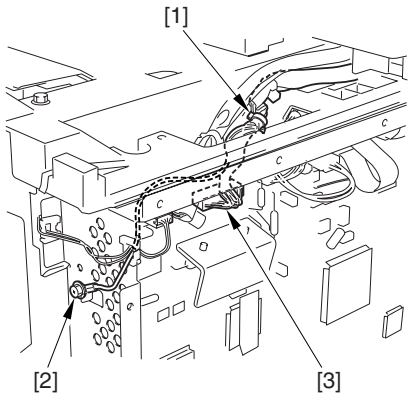
10.4.2.3 Removing the ADF 0006-3891

1) Remove the screw [1], and detach the ADF harness cover [2].



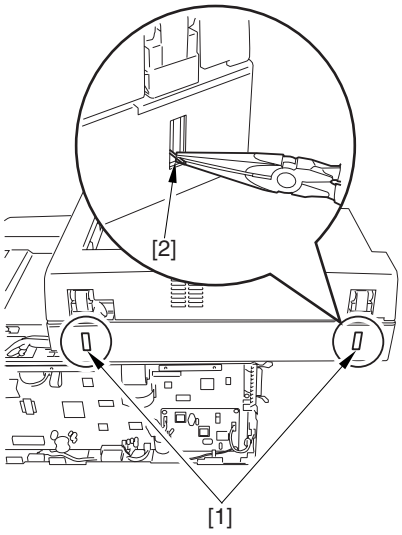
F-10-13

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



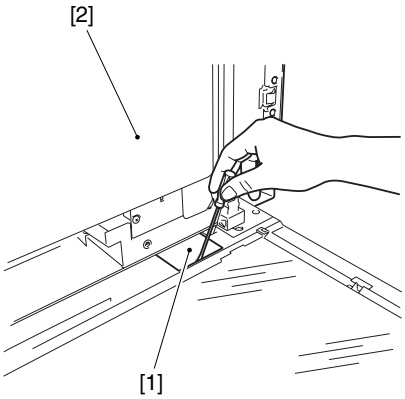
F-10-14

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



F-10-15

6) Return the reader unit to its initial position.
7) Open the ADF.
8) Using a flat-blade screwdriver, remove the cover [1].
9) Detach the ADF [2] from the host machine.



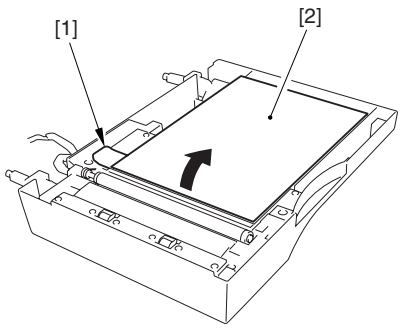
F-10-16

⚠

Take care so that no part will become trapped by harness of the ADF.

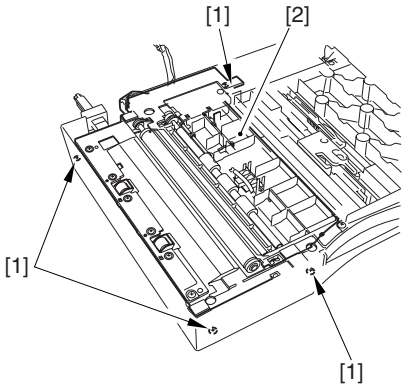
10.4.2.4 Removing the ADF Drive Unit 0006-3892

1) Holding the tab [1], detach the white plate [2].



F-10-17

2) Remove the 4 screws [1], and detach the ADF drive unit [2].

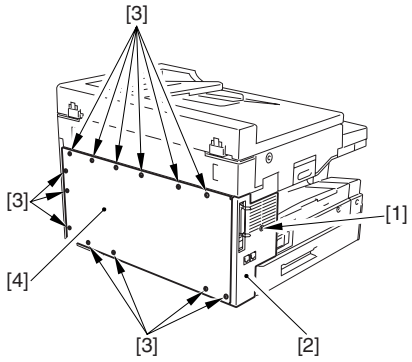


F-10-18

10.4.3 ADF Motor Unit

10.4.3.1 Removing the Rear Cover 0006-3963

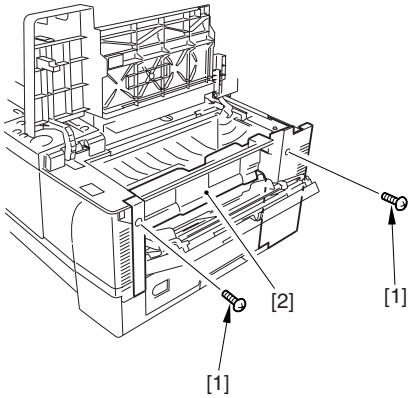
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-19

10.4.3.2 Removing the Right Cover 0006-3964

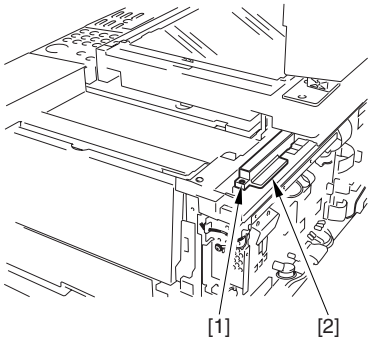
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-20

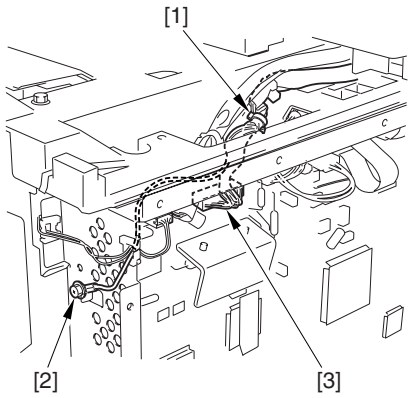
10.4.3.3 Removing the ADF 0006-3965

1) Remove the screw [1], and detach the ADF harness cover [2].



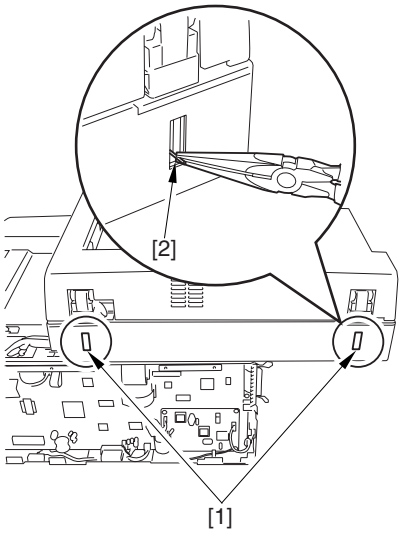
F-10-21

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



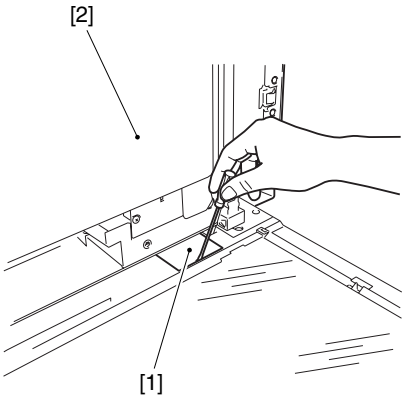
F-10-22

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



F-10-23

6) Return the reader unit to its initial position.
7) Open the ADF.
8) Using a flat-blade screwdriver, remove the cover [1].
9) Detach the ADF [2] from the host machine.



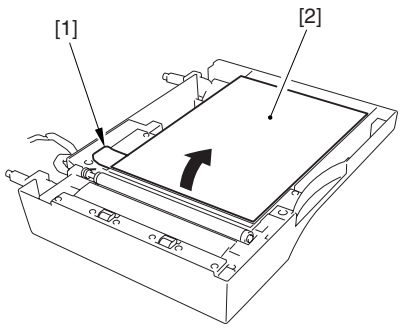
F-10-24

⚠

Take care so that no part will become trapped by harness of the ADF.

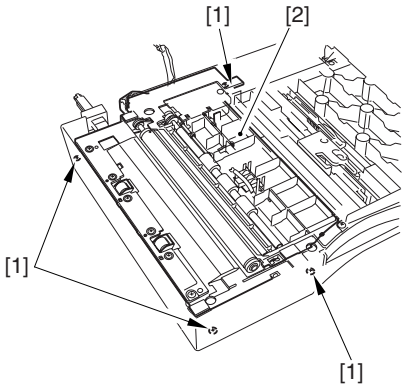
10.4.3.4 Removing the ADF Drive Unit 0006-3967

1) Holding the tab [1], detach the white plate [2].



F-10-25

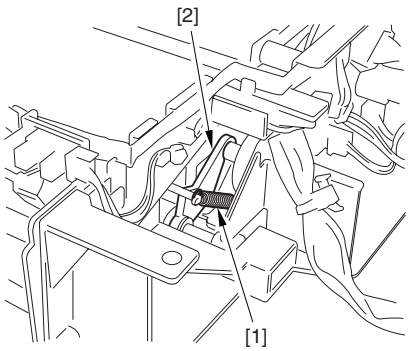
2) Remove the 4 screws [1], and detach the ADF drive unit [2].



F-10-26

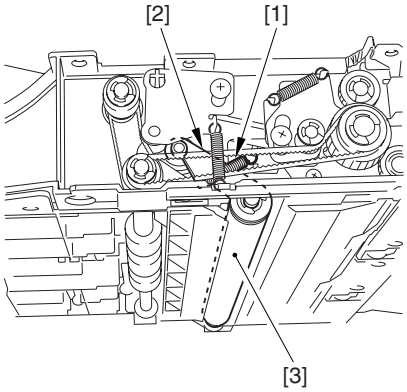
10.4.3.5 Removing the White Roller 0006-3968

1) Remove the spring [1] and the hook [2].



F-10-27

2) Remove the spring [1] and the hook [2], and detach the white roller [3].



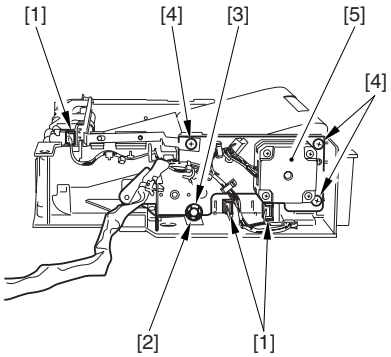
F-10-28

10.4.3.6 Removing the ADF Motor Unit 0006-3897

1) Disconnect the 3 connectors [1].
2) Remove the E-ring [2] and the bushing [3].
3) Remove the 3 screws [4], and detach the ADF motor unit [5].

⚠

The ADF motor is positioned using a special tool and, therefore, cannot be adjusted in the field. Do not remove the ADF motor from the motor base.

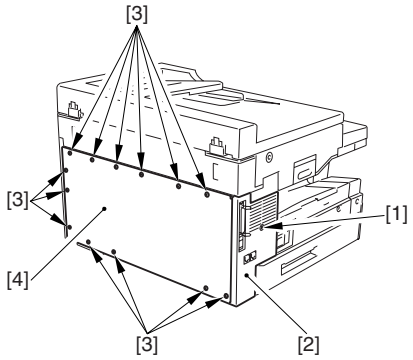


F-10-29

10.4.4 Feeding Outside Guide

10.4.4.1 Removing the Rear Cover 0006-4004

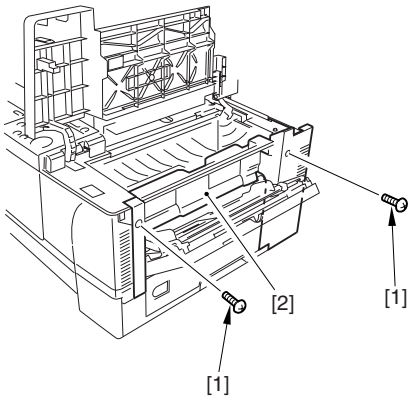
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-30

10.4.4.2 Removing the Right Cover 0006-4005

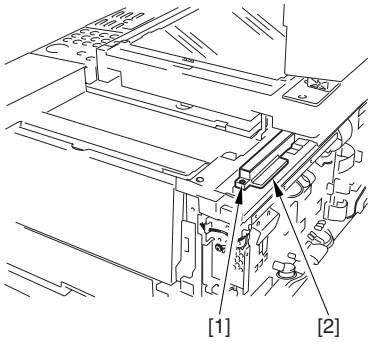
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-31

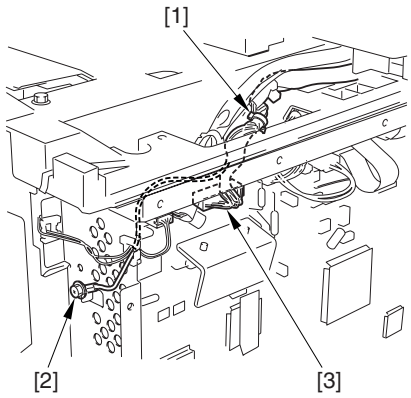
10.4.4.3 Removing the ADF 0006-4006

1) Remove the screw [1], and detach the ADF harness cover [2].



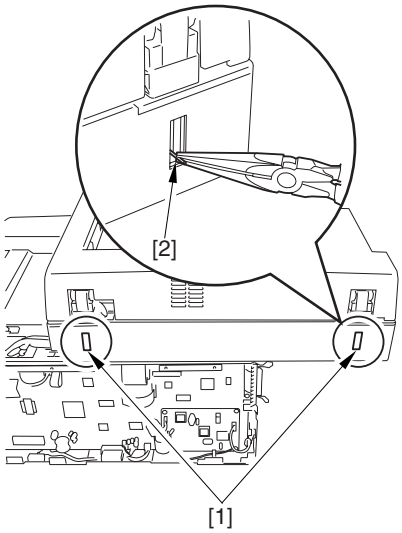
F-10-32

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



F-10-33

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



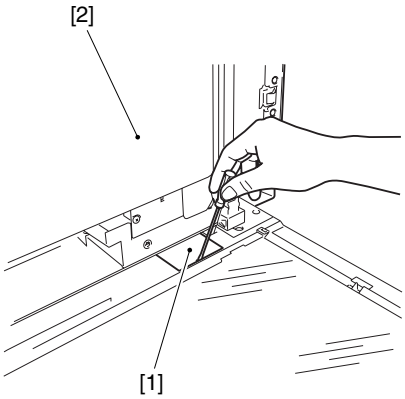
F-10-34

6) Return the reader unit to its initial position.

7) Open the ADF.

8) Using a flat-blade screwdriver, remove the cover [1].

9) Detach the ADF [2] from the host machine.



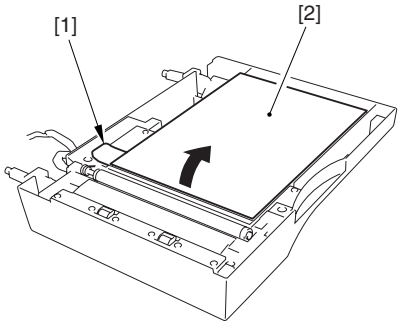
F-10-35

⚠

Take care so that no part will become trapped by harness of the ADF.

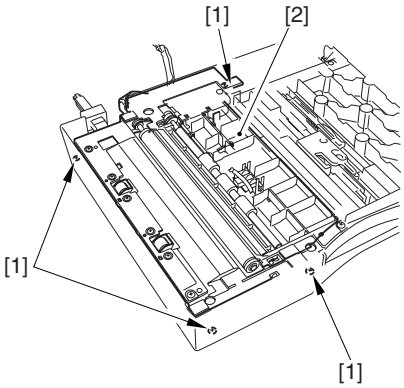
10.4.4.4 Removing the ADF Drive Unit 0006-4007

1) Holding the tab [1], detach the white plate [2].



F-10-36

2) Remove the 4 screws [1], and detach the ADF drive unit [2].

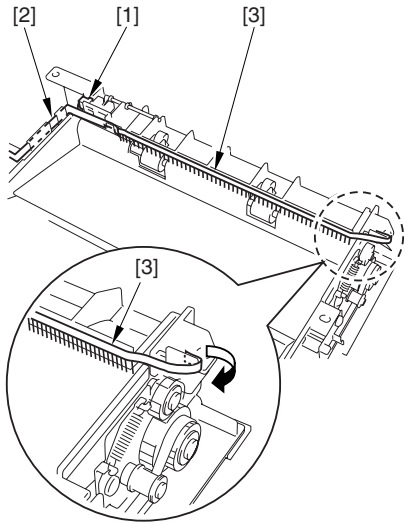


F-10-37

10.4.4.5 Removing the Feeding Outside Guide 0006-4010

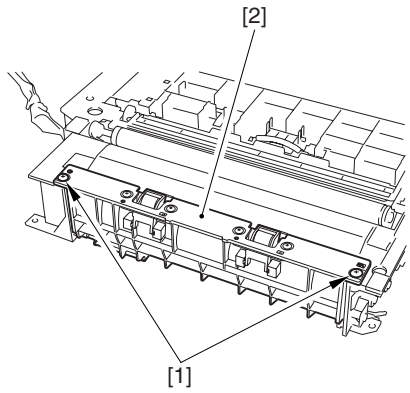
1) Disconnect the connector [1], and detach the grounding plate [2].

2) Remove the static eliminator [3] as much as shown.



F-10-38

3) Remove the 2 screws [1], and detach the feeding outside guide [2].

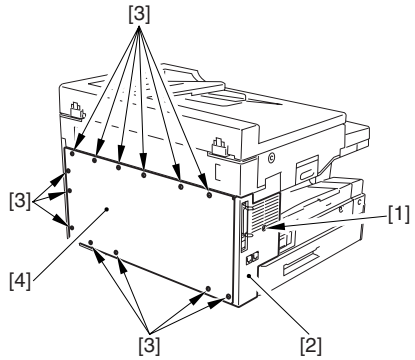


F-10-39

10.4.5 Separation Roller Unit

10.4.5.1 Removing the Rear Cover 0006-3990

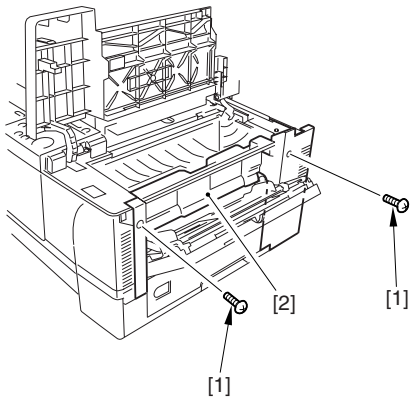
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-40

10.4.5.2 Removing the Right Cover 0006-3993

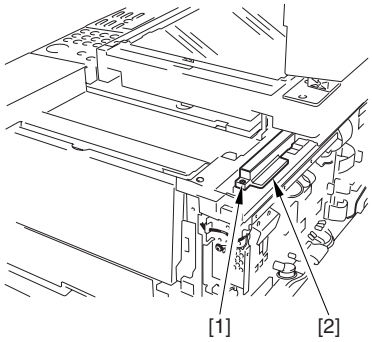
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-41

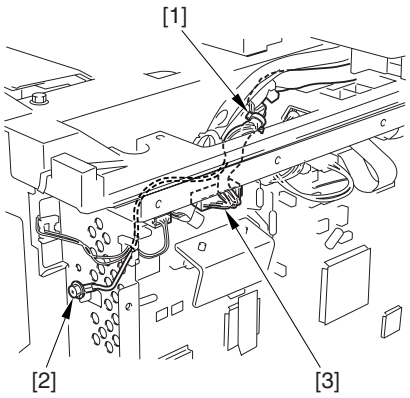
10.4.5.3 Removing the ADF 0006-3995

1) Remove the screw [1], and detach the ADF harness cover [2].



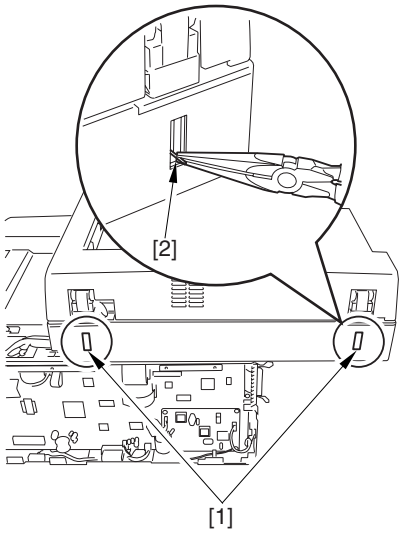
F-10-42

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



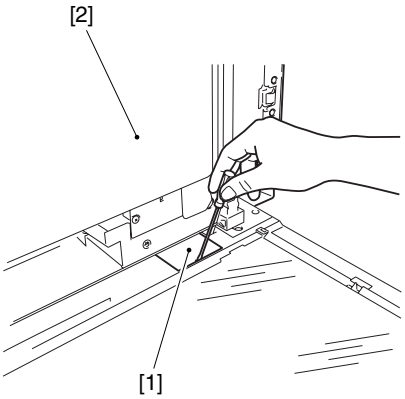
F-10-43

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



F-10-44

6) Return the reader unit to its initial position.
7) Open the ADF.
8) Using a flat-blade screwdriver, remove the cover [1].
9) Detach the ADF [2] from the host machine.



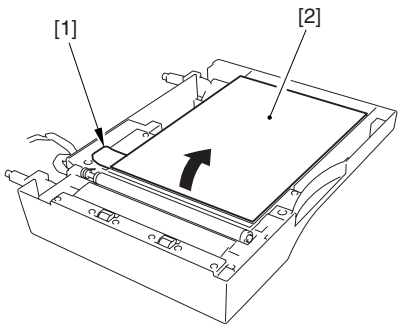
F-10-45

⚠

Take care so that no part will become trapped by harness of the ADF.

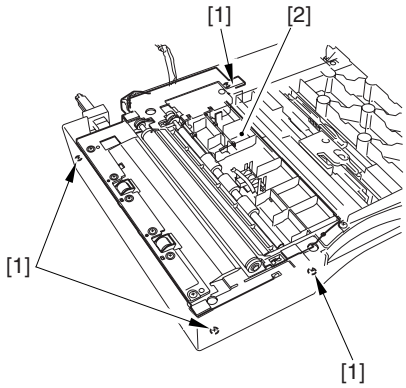
10.4.5.4 Removing the ADF Drive Unit 0006-3999

1) Holding the tab [1], detach the white plate [2].



F-10-46

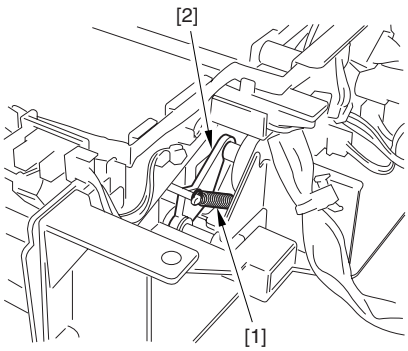
2) Remove the 4 screws [1], and detach the ADF drive unit [2].



F-10-47

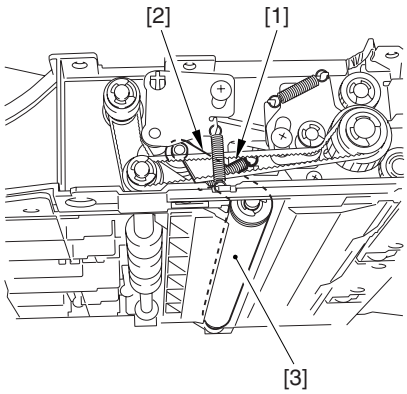
10.4.5.5 Removing the White Roller 0006-4001

1) Remove the spring [1] and the hook [2].



F-10-48

2) Remove the spring [1] and the hook [2], and detach the white roller [3].



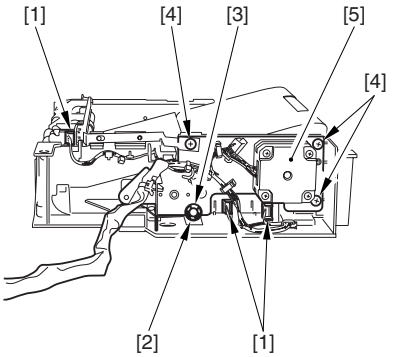
F-10-49

10.4.5.6 Removing the ADF Motor Unit 0006-3916

1) Disconnect the 3 connectors [1].
2) Remove the E-ring [2] and the bushing [3].
3) Remove the 3 screws [4], and detach the ADF motor unit [5].

⚠

The ADF motor is positioned using a special tool and, therefore, cannot be adjusted in the field. Do not remove the ADF motor from the motor base.

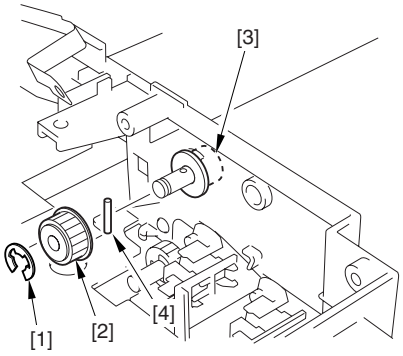


F-10-50

10.4.5.7 Removing the Separation Roller Unit 0006-3917

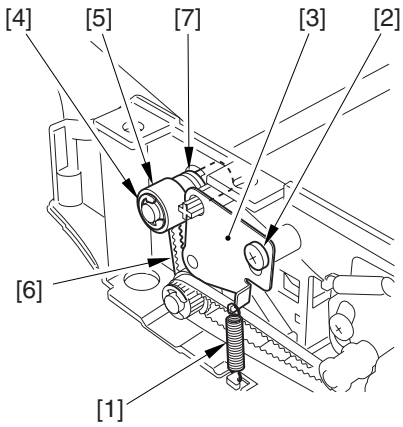
1) Remove the E-ring [1], gear [2], bushing[3], and

pin [4].



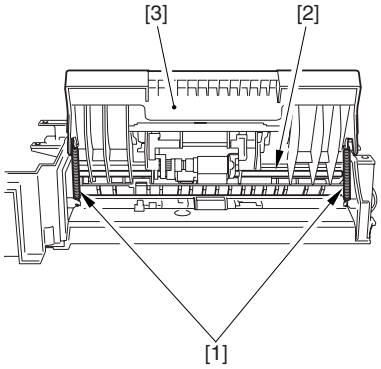
F-10-51

2) Remove the spring [1], screw [2], and plate [3].
3) Remove the E-ring [4], gear [5], belt [6], and bushing [7].



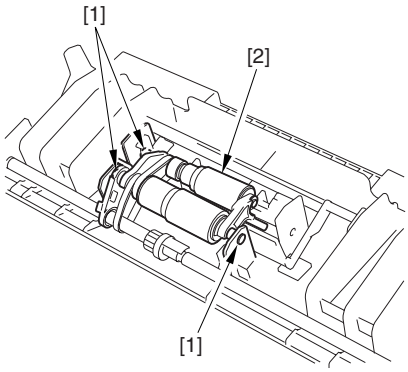
F-10-52

4) Remove the 2 springs [1], and slide the shaft [2] to detach the open/close cover unit [3].



F-10-53

5) Free the 3 hooks [1], and detach the separation roller unit [2].

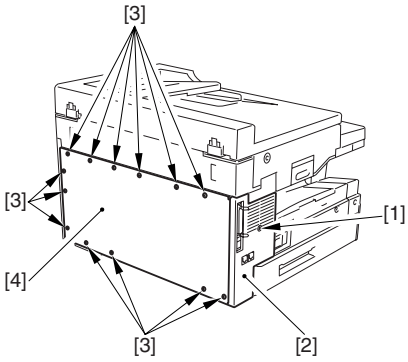


F-10-54

10.4.6 Separation Roller

10.4.6.1 Removing the Rear Cover 0006-4058

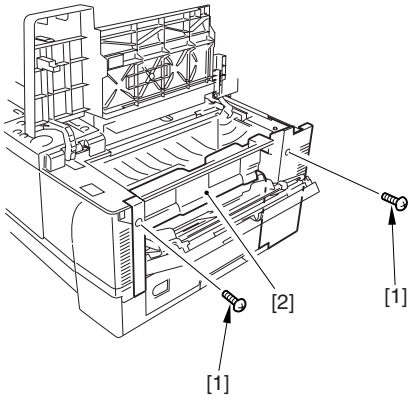
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



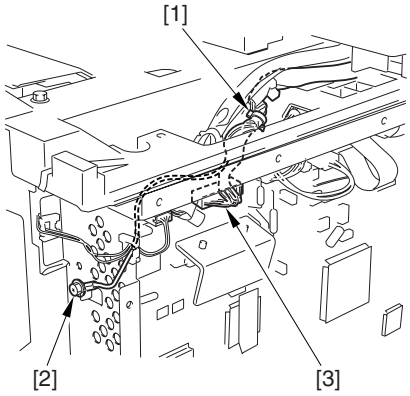
F-10-55

10.4.6.2 Removing the Right Cover 0006-4059

1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



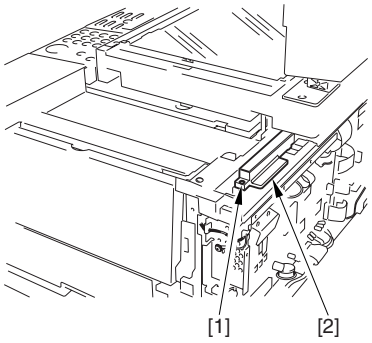
F-10-56



F-10-58

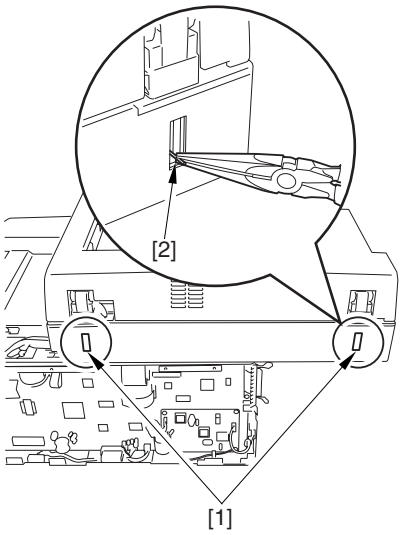
10.4.6.3 Removing the ADF 0006-4060

1) Remove the screw [1], and detach the ADF harness cover [2].



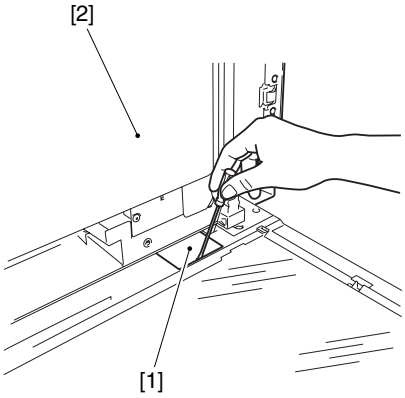
F-10-57

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].
5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



F-10-59

6) Return the reader unit to its initial position.
7) Open the ADF.
8) Using a flat-blade screwdriver, remove the cover [1].
9) Detach the ADF [2] from the host machine.



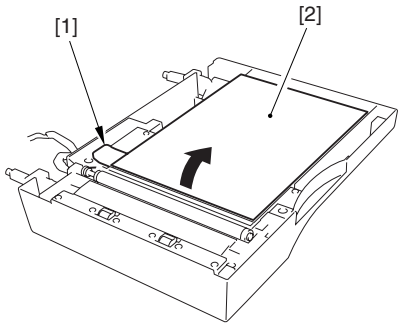
F-10-60

⚠

Take care so that no part will become trapped by harness of the ADF.

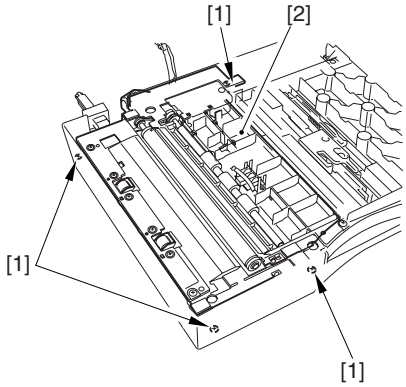
10.4.6.4 Removing the ADF Drive Unit 0006-4062

1) Holding the tab [1], detach the white plate [2].



F-10-61

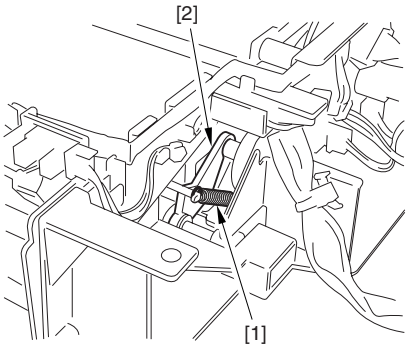
2) Remove the 4 screws [1], and detach the ADF drive unit [2].



F-10-62

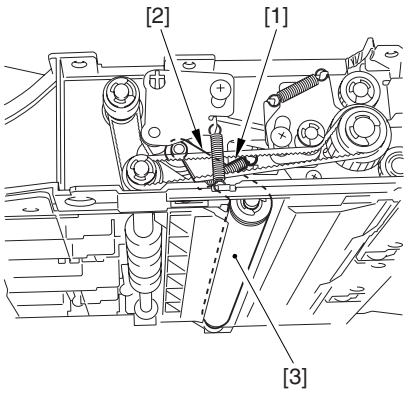
10.4.6.5 Removing the White Roller 0006-4064

1) Remove the spring [1] and the hook [2].



F-10-63

2) Remove the spring [1] and the hook [2], and detach the white roller [3].



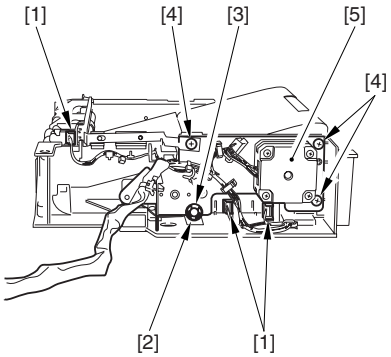
F-10-64

10.4.6.6 Removing the ADF Motor Unit 0006-3925

1) Disconnect the 3 connectors [1].
2) Remove the E-ring [2] and the bushing [3].
3) Remove the 3 screws [4], and detach the ADF motor unit [5].

⚠

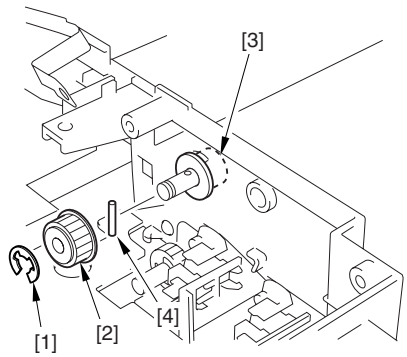
The ADF motor is positioned using a special tool and, therefore, cannot be adjusted in the field. Do not remove the ADF motor from the motor base.



F-10-65

10.4.6.7 Removing the Separation Roller Unit 0006-3926

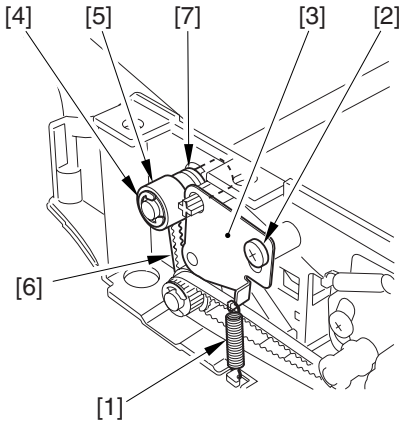
1) Remove the E-ring [1], gear [2], bushing[3], and pin [4].



F-10-66

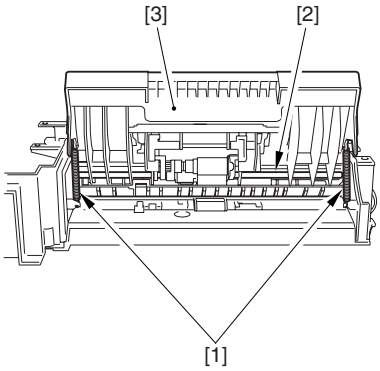
2) Remove the spring [1], screw [2], and plate [3].

3) Remove the E-ring [4], gear [5], belt [6], and bushing [7].



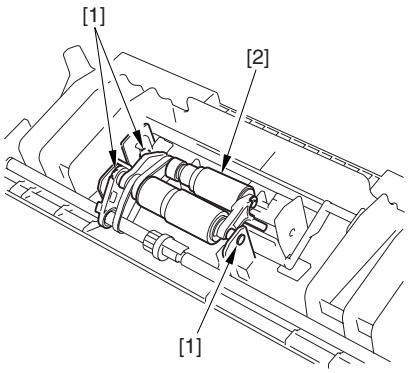
F-10-67

4) Remove the 2 springs [1], and slide the shaft [2] to detach the open/close cover unit [3].



F-10-68

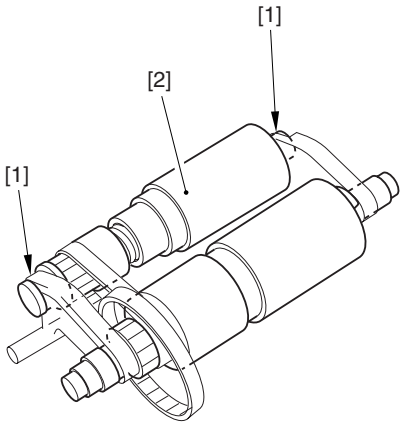
5) Free the 3 hooks [1], and detach the separation roller unit [2].



F-10-69

10.4.6.8 Removing the Original Pickup Roller 0006-4054

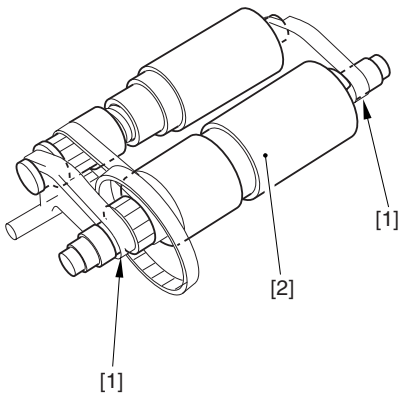
1) Free the 2 hooks [1], and detach the original pickup roller [2].



F-10-70

10.4.6.9 Removing the Original Separation Roller 0006-3928

1) Free the 2 hooks [1], and detach the original separation roller [2].

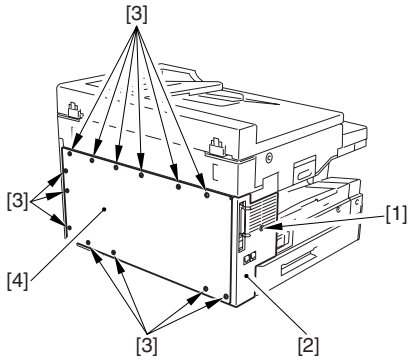


F-10-71

10.4.7 Pickup Roller

10.4.7.1 Removing the Rear Cover 0006-4042

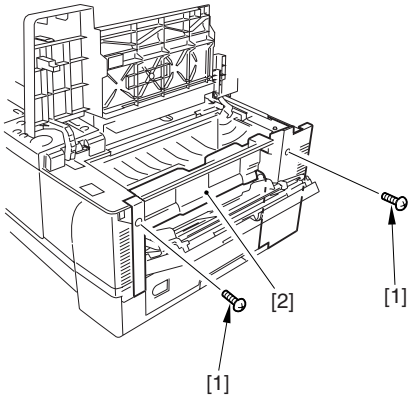
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-72

10.4.7.2 Removing the Right Cover 0006-4043

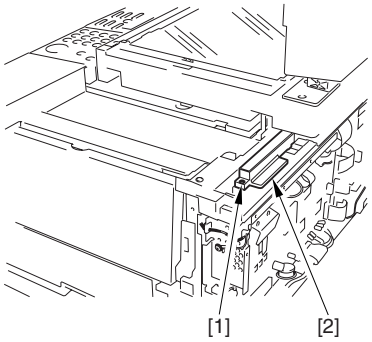
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-73

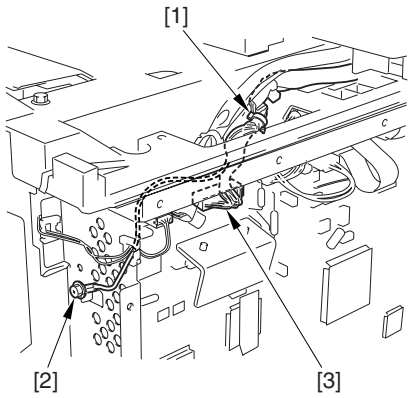
10.4.7.3 Removing the ADF 0006-4044

1) Remove the screw [1], and detach the ADF harness cover [2].



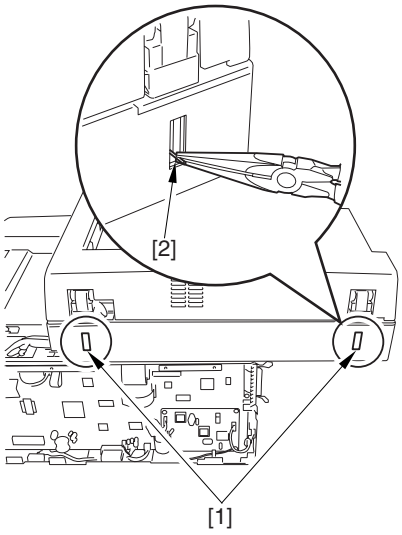
F-10-74

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



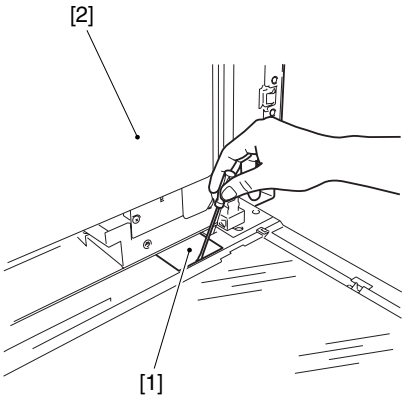
F-10-75

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



F-10-76

6) Return the reader unit to its initial position.
7) Open the ADF.
8) Using a flat-blade screwdriver, remove the cover [1].
9) Detach the ADF [2] from the host machine.



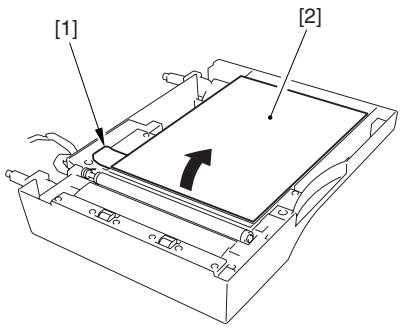
F-10-77

⚠

Take care so that no part will become trapped by harness of the ADF.

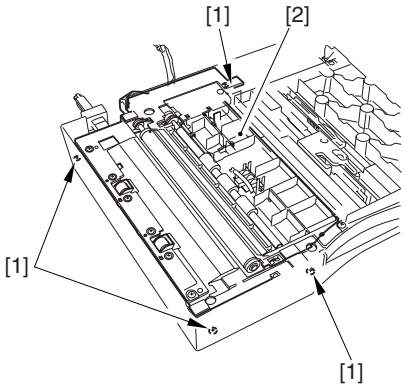
10.4.7.4 Removing the ADF Drive Unit 0006-4045

1) Holding the tab [1], detach the white plate [2].



F-10-78

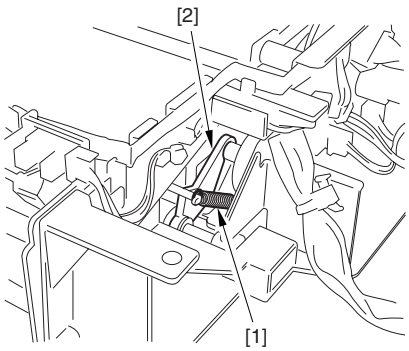
2) Remove the 4 screws [1], and detach the ADF drive unit [2].



F-10-79

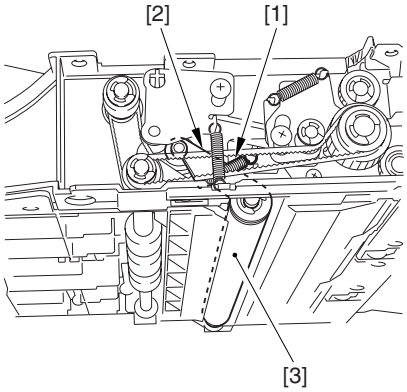
10.4.7.5 Removing the White Roller 0006-4046

1) Remove the spring [1] and the hook [2].



F-10-80

2) Remove the spring [1] and the hook [2], and detach the white roller [3].



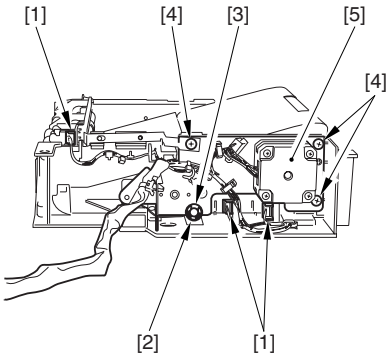
F-10-81

10.4.7.6 Removing the ADF Motor Unit 0006-4047

1) Disconnect the 3 connectors [1].
2) Remove the E-ring [2] and the bushing [3].
3) Remove the 3 screws [4], and detach the ADF motor unit [5].

⚠

The ADF motor is positioned using a special tool and, therefore, cannot be adjusted in the field. Do not remove the ADF motor from the motor base.

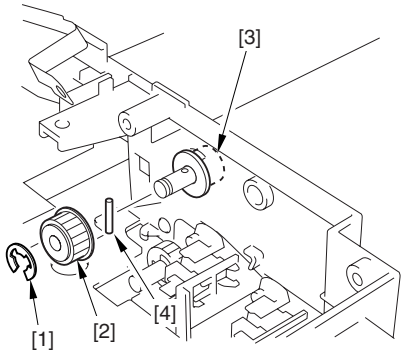


F-10-82

10.4.7.7 Removing the Separation Roller Unit 0006-4051

1) Remove the E-ring [1], gear [2], bushing[3], and

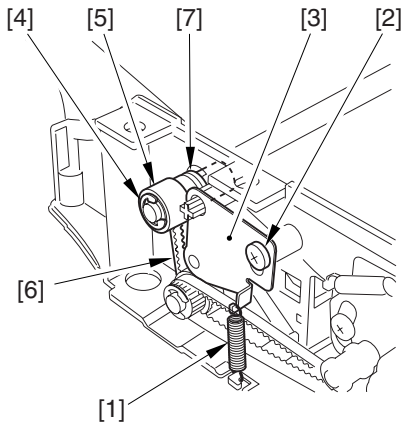
pin [4].



F-10-83

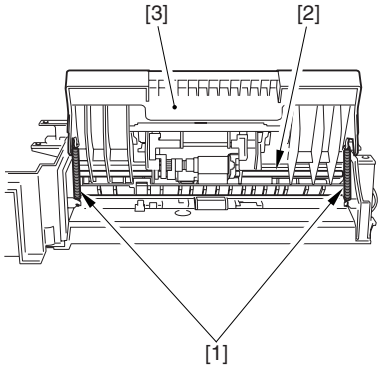
2) Remove the spring [1], screw [2], and plate [3].

3) Remove the E-ring [4], gear [5], belt [6], and bushing [7].



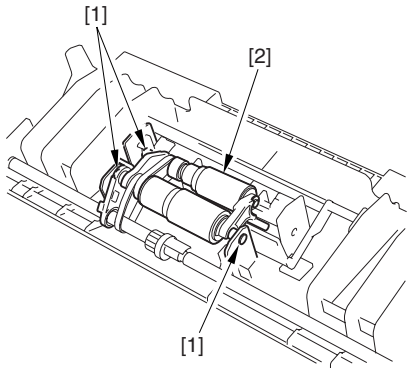
F-10-84

4) Remove the 2 springs [1], and slide the shaft [2] to detach the open/close cover unit [3].



F-10-85

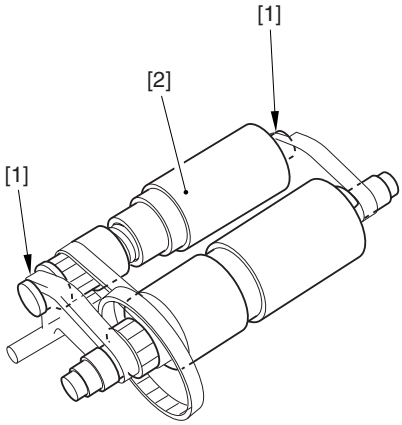
5) Free the 3 hooks [1], and detach the separation roller unit [2].



F-10-86

10.4.7.8 Removing the Original Pickup Roller 0006-4052

1) Free the 2 hooks [1], and detach the original pickup roller [2].



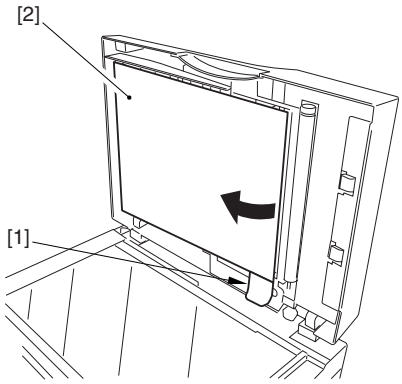
F-10-87

10.4.8 Original Separation Pad

10.4.8.1 Removing the Original Separation Pad 0006-3942

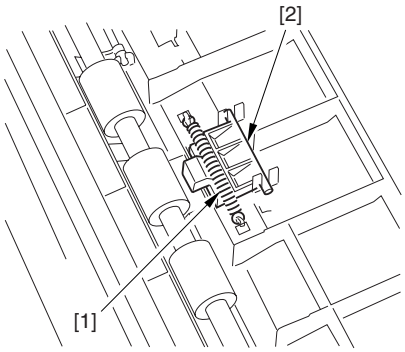
1) Open the ADF.

2) Hold the tab [1], and detach the white plate [2].



F-10-88

3) Remove the spring [1], and detach the original separation pad [2].

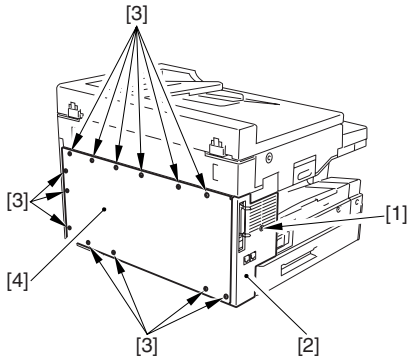


F-10-89

10.4.9 Registration Roller

10.4.9.1 Removing the Rear Cover 0006-3947

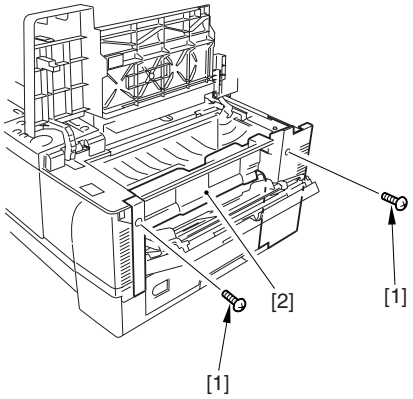
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-90

10.4.9.2 Removing the Right Cover 0006-3948

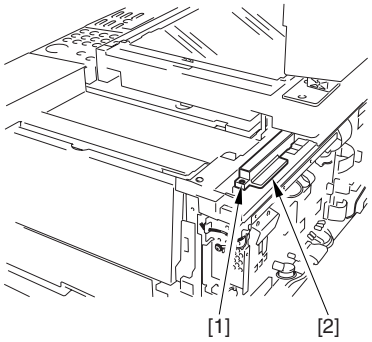
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-91

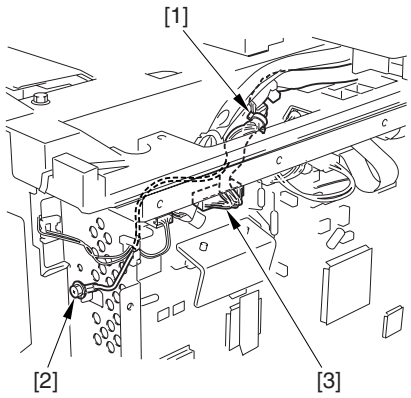
10.4.9.3 Removing the ADF 0006-3949

1) Remove the screw [1], and detach the ADF harness cover [2].



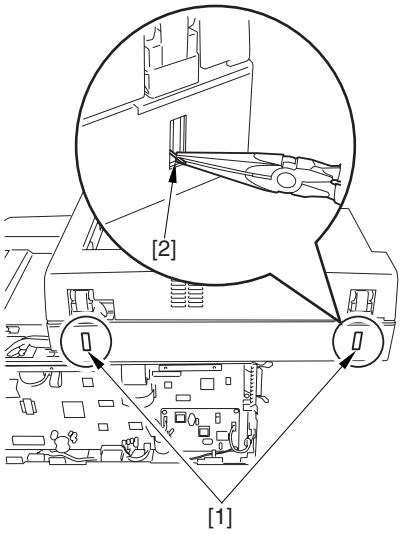
F-10-92

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



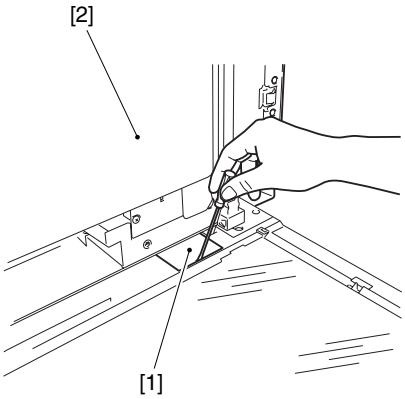
F-10-93

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



F-10-94

6) Return the reader unit to its initial position.
7) Open the ADF.
8) Using a flat-blade screwdriver, remove the cover [1].
9) Detach the ADF [2] from the host machine.



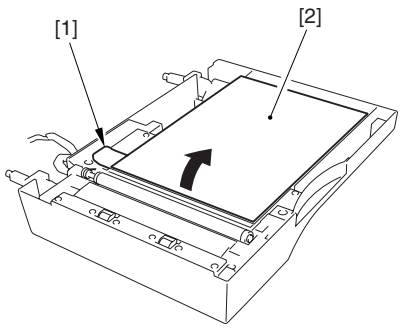
F-10-95

⚠

Take care so that no part will become trapped by harness of the ADF.

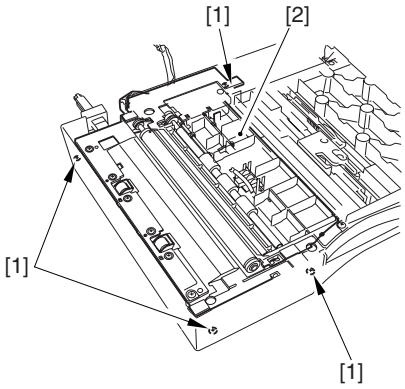
10.4.9.4 Removing the ADF Drive Unit 0006-3950

1) Holding the tab [1], detach the white plate [2].



F-10-96

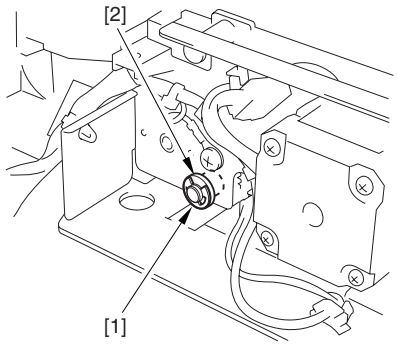
2) Remove the 4 screws [1], and detach the ADF drive unit [2].



F-10-97

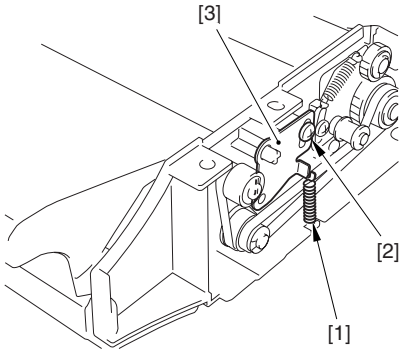
10.4.9.5 Removing the ADF Registration Roller 0006-3951

1) Remove the E-ring [1], and bushing [2].



F-10-98

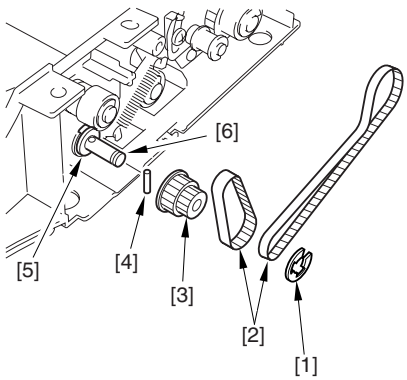
2) Remove the spring [1] and the screw [2], and detach the plate [3].



F-10-99

3) Remove the E-ring [1], gear [2], bushing [3], pin [4], and 2 belts [5].

4) Remove the ADF registration roller [6].

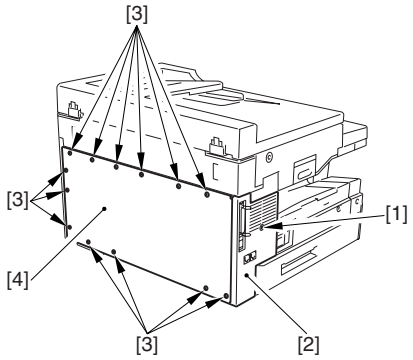


F-10-100

10.4.10 White Roller

10.4.10.1 Removing the Rear Cover 0006-3956

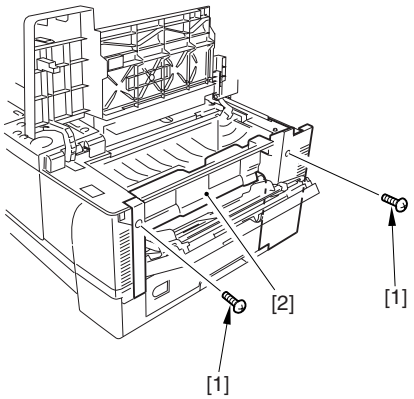
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-101

10.4.10.2 Removing the Right Cover 0006-3957

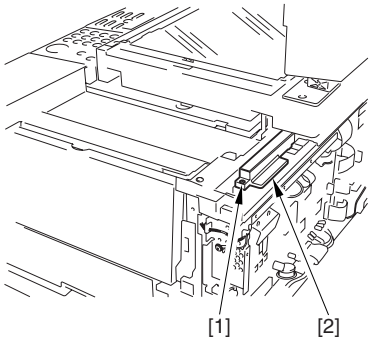
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-102

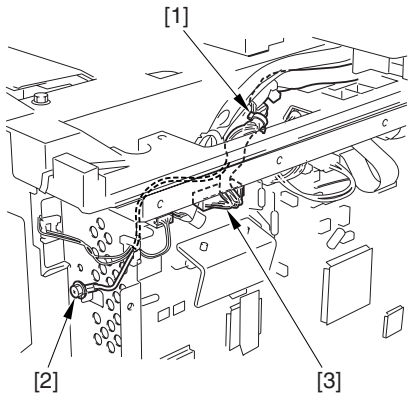
10.4.10.3 Removing the ADF 0006-3958

1) Remove the screw [1], and detach the ADF harness cover [2].



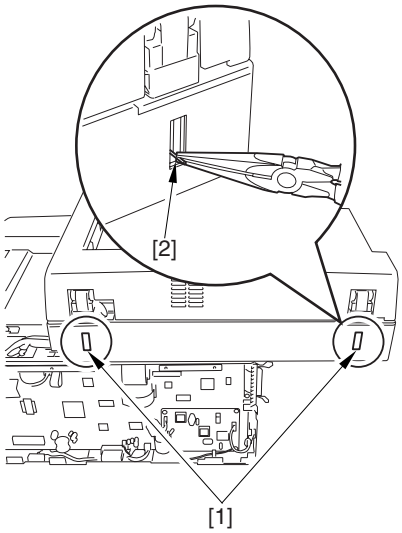
F-10-103

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



F-10-104

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



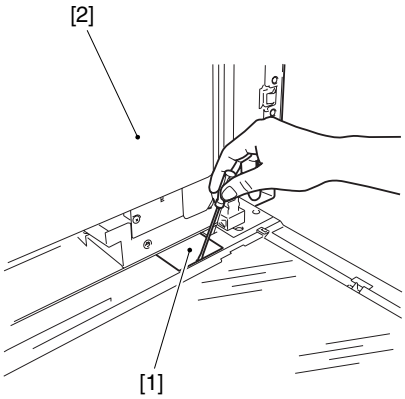
F-10-105

6) Return the reader unit to its initial position.

7) Open the ADF.

8) Using a flat-blade screwdriver, remove the cover [1].

9) Detach the ADF [2] from the host machine.



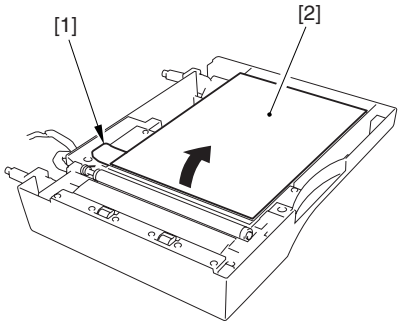
F-10-106

⚠

Take care so that no part will become trapped by harness of the ADF.

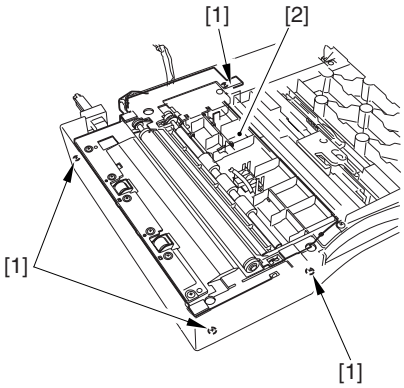
10.4.10.4 Removing the ADF Drive Unit 0006-3959

1) Holding the tab [1], detach the white plate [2].



F-10-107

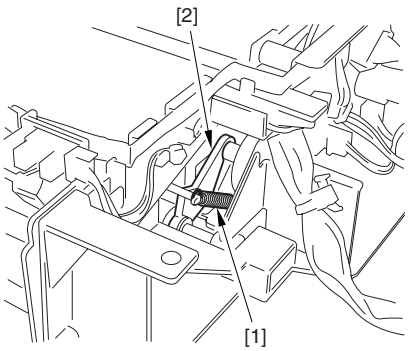
2) Remove the 4 screws [1], and detach the ADF drive unit [2].



F-10-108

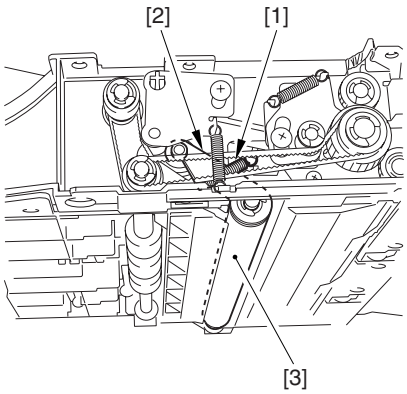
10.4.10.5 Removing the White Roller 0006-3960

1) Remove the spring [1] and the hook [2].



F-10-109

2) Remove the spring [1] and the hook [2], and detach the white roller [3].

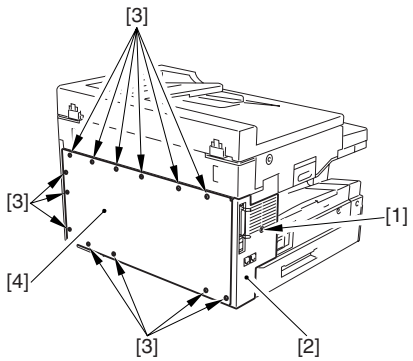


F-10-110

10.4.11 Feed Roller

10.4.11.1 Removing the Rear Cover 0006-4016

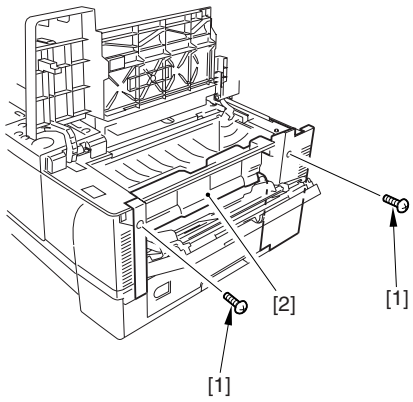
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-111

10.4.11.2 Removing the Right Cover 0006-4017

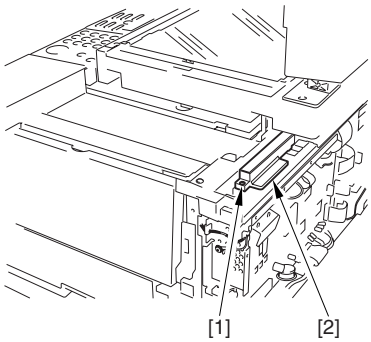
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-112

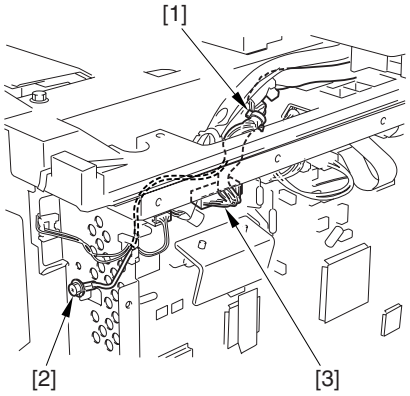
10.4.11.3 Removing the ADF 0006-4019

1) Remove the screw [1], and detach the ADF harness cover [2].



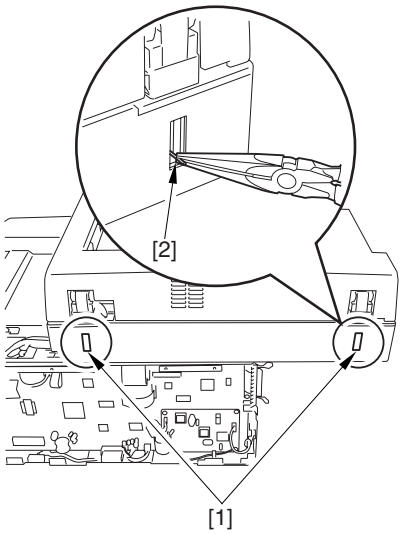
F-10-113

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



F-10-114

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



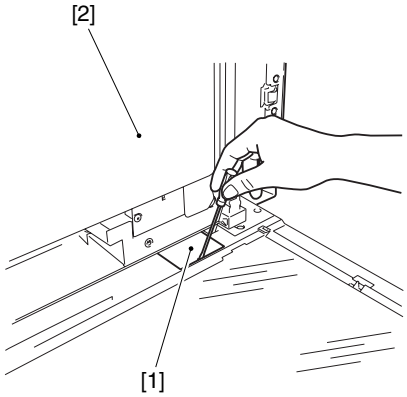
F-10-115

6) Return the reader unit to its initial position.

7) Open the ADF.

8) Using a flat-blade screwdriver, remove the cover [1].

9) Detach the ADF [2] from the host machine.



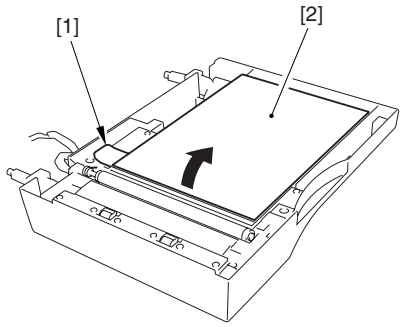
F-10-116

⚠

Take care so that no part will become trapped by harness of the ADF.

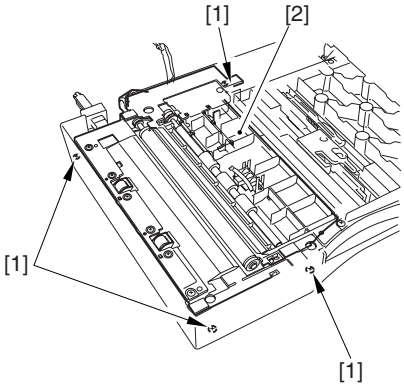
10.4.11.4 Removing the ADF Drive Unit 0006-4020

1) Holding the tab [1], detach the white plate [2].



F-10-117

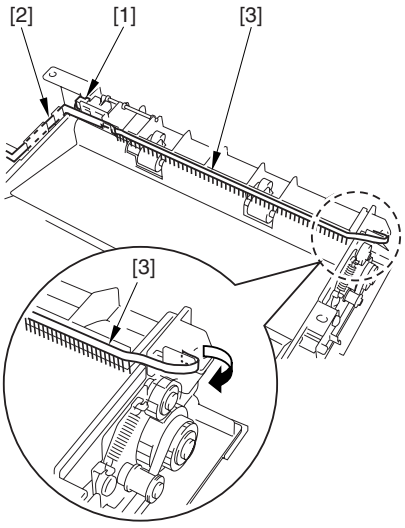
2) Remove the 4 screws [1], and detach the ADF drive unit [2].



F-10-118

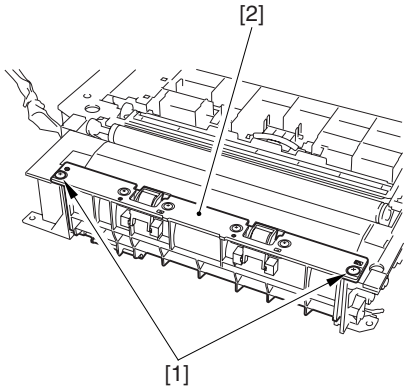
10.4.11.5 Removing the Feeding Outside Guide 0006-4021

1) Disconnect the connector [1], and detach the grounding plate [2].
2) Remove the static eliminator [3] as much as shown.



F-10-119

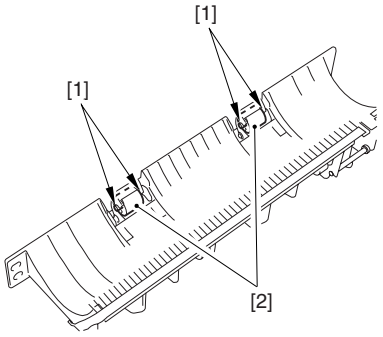
3) Remove the 2 screws [1], and detach the feeding outside guide [2].



F-10-120

10.4.11.6 Removing the Feed Roll 0006-4025

1) Free the 2 hooks [1], and detach the feed roll [2].

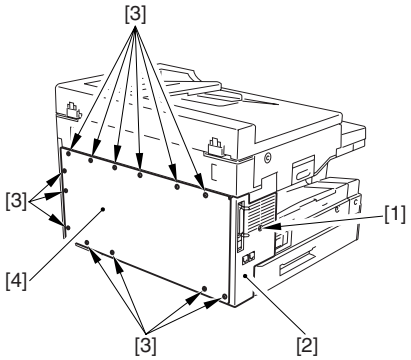


F-10-121

10.4.12 Original Feed Roller

10.4.12.1 Removing the Rear Cover 0006-4139

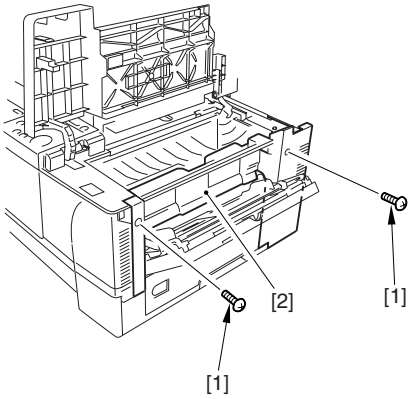
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-122

10.4.12.2 Removing the Right Cover 0006-4140

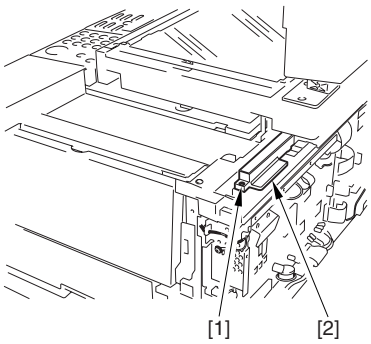
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-123

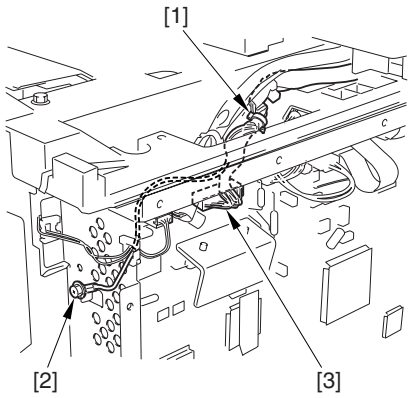
10.4.12.3 Removing the ADF 0006-4141

1) Remove the screw [1], and detach the ADF harness cover [2].



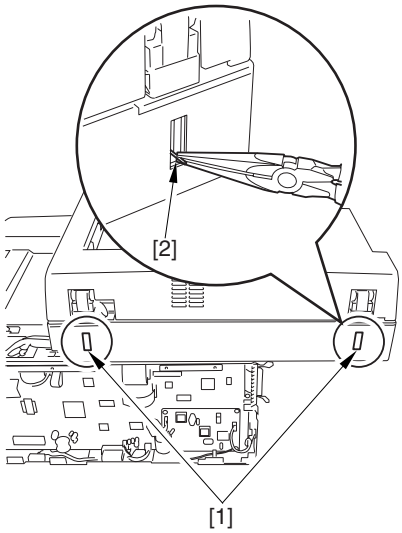
F-10-124

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



F-10-125

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



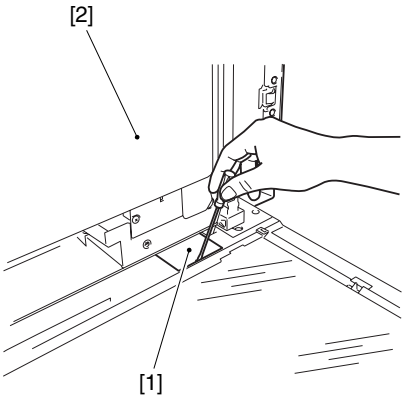
F-10-126

6) Return the reader unit to its initial position.

7) Open the ADF.

8) Using a flat-blade screwdriver, remove the cover [1].

9) Detach the ADF [2] from the host machine.



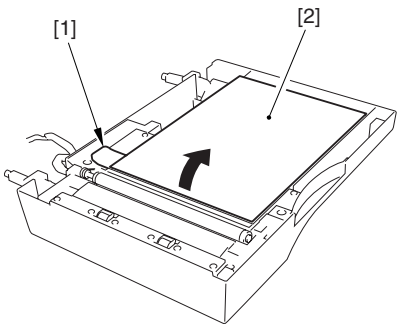
F-10-127

⚠

Take care so that no part will become trapped by harness of the ADF.

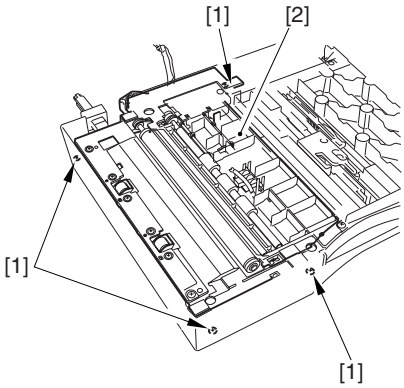
10.4.12.4 Removing the ADF Drive Unit 0006-4142

1) Holding the tab [1], detach the white plate [2].



F-10-128

2) Remove the 4 screws [1], and detach the ADF drive unit [2].

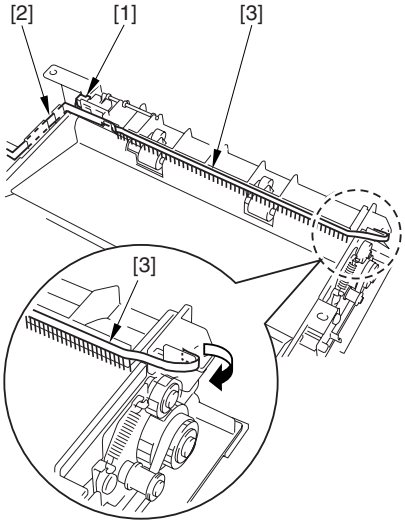


F-10-129

10.4.12.5 Removing the Feeding Outside Guide 0006-4143

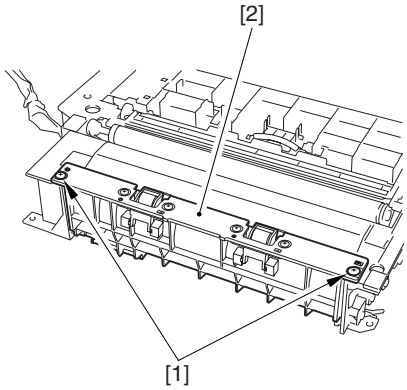
1) Disconnect the connector [1], and detach the grounding plate [2].

2) Remove the static eliminator [3] as much as shown.



F-10-130

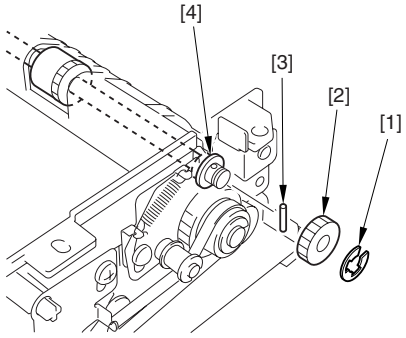
3) Remove the 2 screws [1], and detach the feeding outside guide [2].



F-10-131

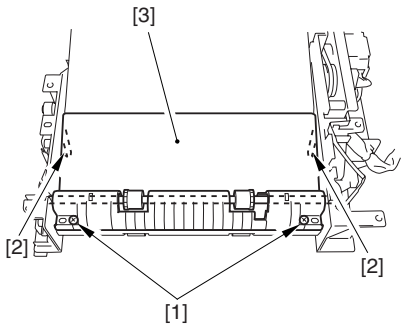
10.4.12.6 Removing the Delivery Stacking Tray 0006-4145

1) Remove the E-ring [1], gear [2], pin [3], and bushing [4].



F-10-132

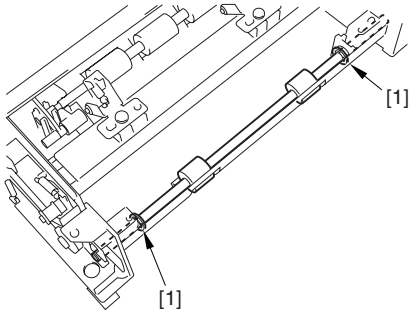
2) Remove the 2 screws [1], and free the 2 hooks [2].
3) Remove the delivery stacking tray [3].



F-10-133

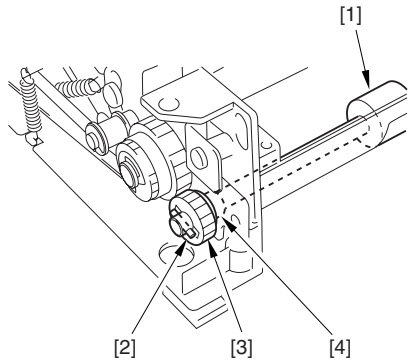
10.4.12.7 Removing the Original Feed Roller 0006-4069

1) Remove the 2 E-rings [1].



F-10-134

2) Slide the original feed roller [1] to the left, and remove the pin [2], gear [3], and bushing [4]; then, detach the original feed roller [1].

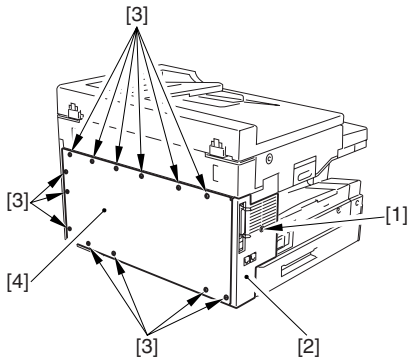


F-10-135

10.4.13 Original Delivery Roller

10.4.13.1 Removing the Rear Cover 0006-4124

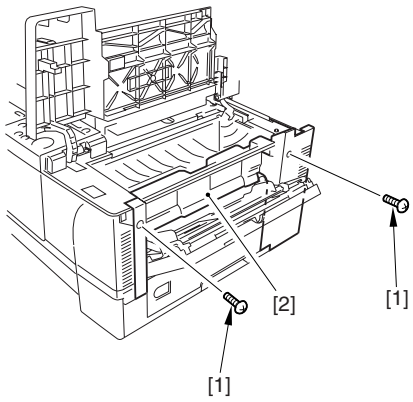
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-136

10.4.13.2 Removing the Right Cover 0006-4125

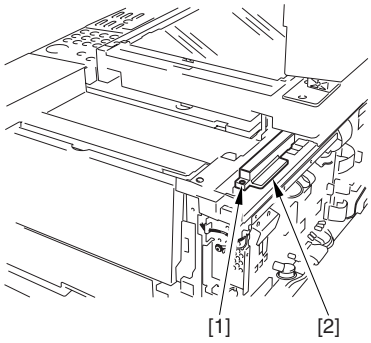
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-137

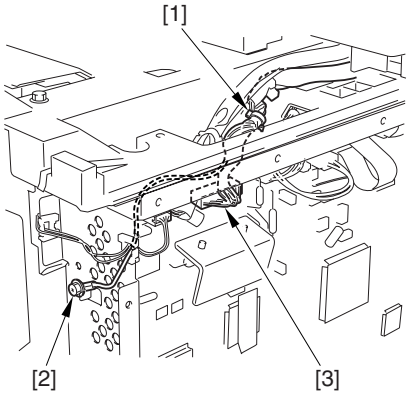
10.4.13.3 Removing the ADF 0006-4126

1) Remove the screw [1], and detach the ADF harness cover [2].



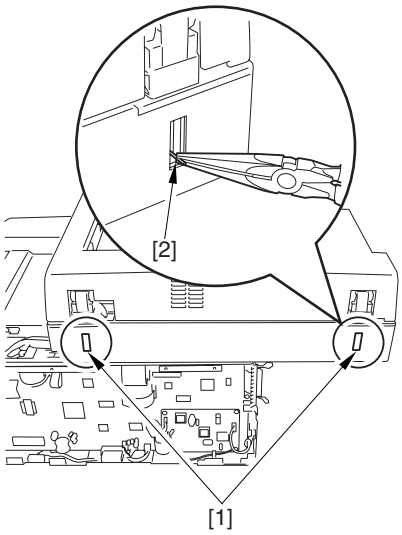
F-10-138

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



F-10-139

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



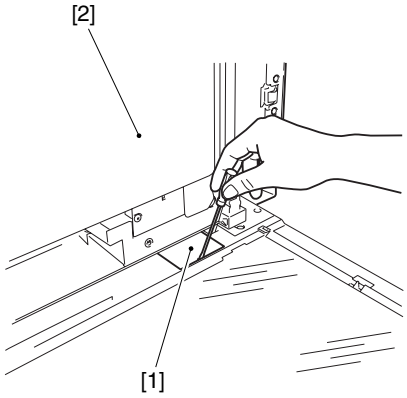
F-10-140

6) Return the reader unit to its initial position.

7) Open the ADF.

8) Using a flat-blade screwdriver, remove the cover [1].

9) Detach the ADF [2] from the host machine.



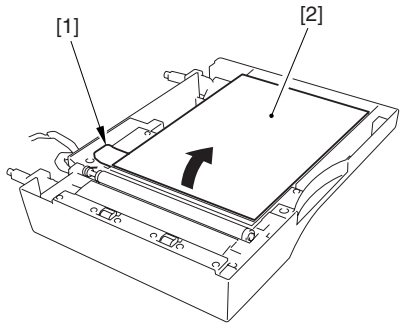
F-10-141

⚠

Take care so that no part will become trapped by harness of the ADF.

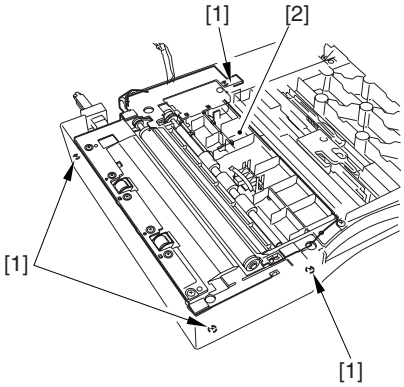
10.4.13.4 Removing the ADF Drive Unit 0006-4127

1) Holding the tab [1], detach the white plate [2].



F-10-142

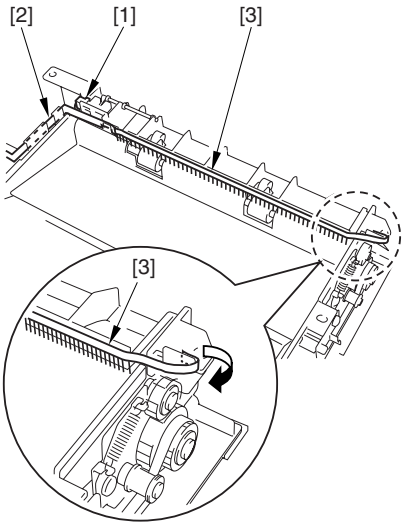
2) Remove the 4 screws [1], and detach the ADF drive unit [2].



F-10-143

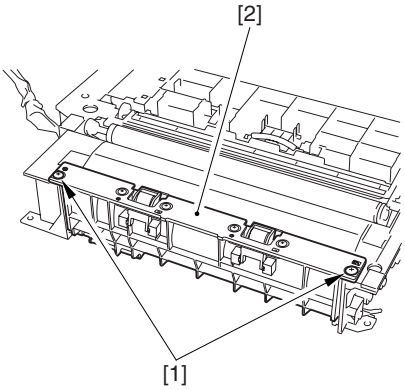
10.4.13.5 Removing the Feeding Outside Guide 0006-4133

1) Disconnect the connector [1], and detach the grounding plate [2].
2) Remove the static eliminator [3] as much as shown.



F-10-144

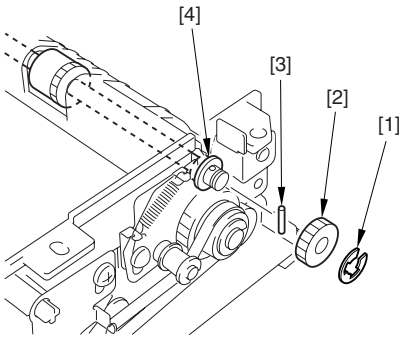
3) Remove the 2 screws [1], and detach the feeding outside guide [2].



F-10-145

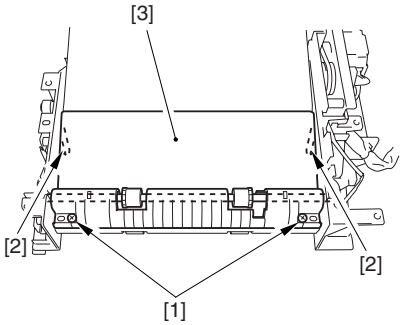
10.4.13.6 Removing the Delivery Stacking Tray 0006-4134

1) Remove the E-ring [1], gear [2], pin [3], and bushing [4].



F-10-146

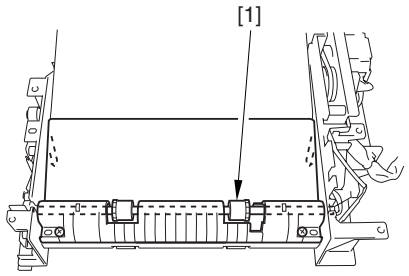
2) Remove the 2 screws [1], and free the 2 hooks [2].
3) Remove the delivery stacking tray [3].



F-10-147

10.4.13.7 Removing the Original Delivery Roller 0006-4135

1) Detach the original delivery roller [1].

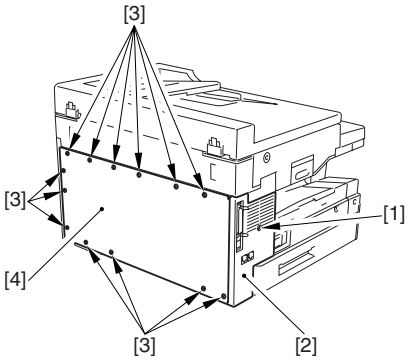


F-10-148

10.4.14 Original Sensor

10.4.14.1 Removing the Rear Cover 0006-3971

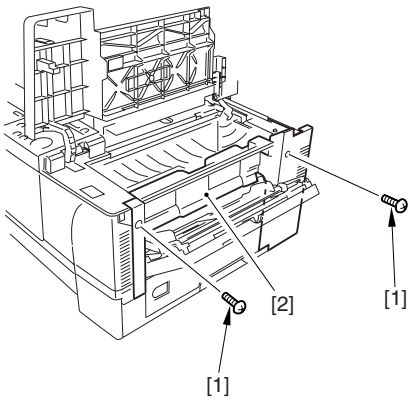
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-149

10.4.14.2 Removing the Right Cover 0006-3973

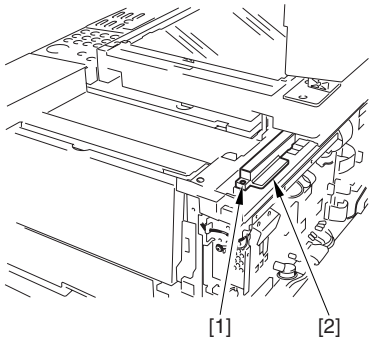
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-150

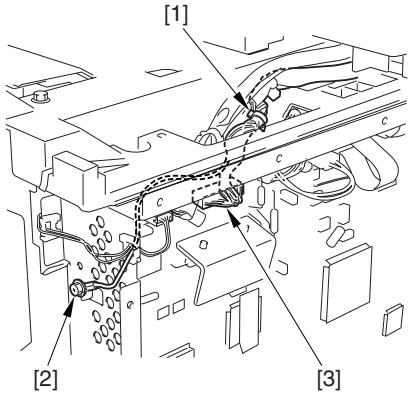
10.4.14.3 Removing the ADF 0006-3976

1) Remove the screw [1], and detach the ADF harness cover [2].



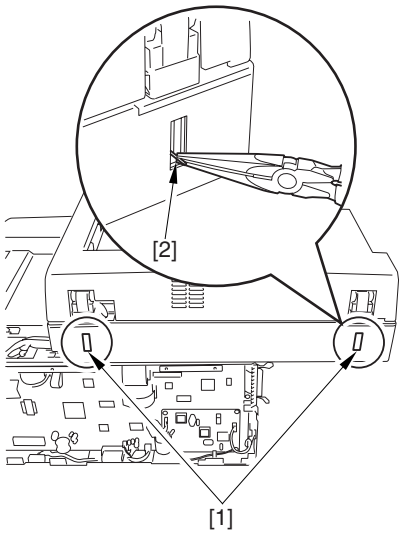
F-10-151

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



F-10-152

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



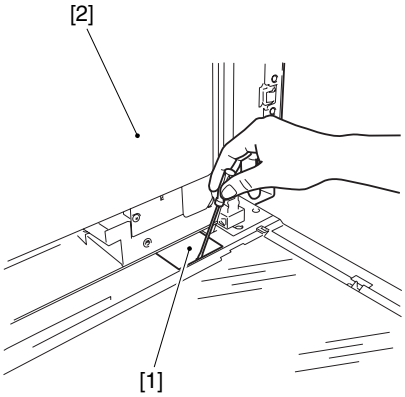
F-10-153

6) Return the reader unit to its initial position.

7) Open the ADF.

8) Using a flat-blade screwdriver, remove the cover [1].

9) Detach the ADF [2] from the host machine.



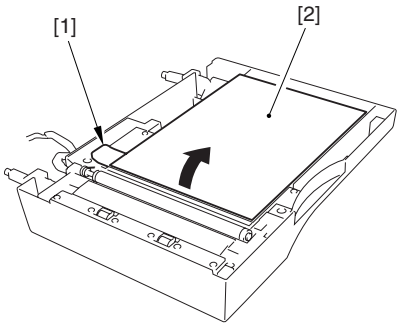
F-10-154

⚠

Take care so that no part will become trapped by harness of the ADF.

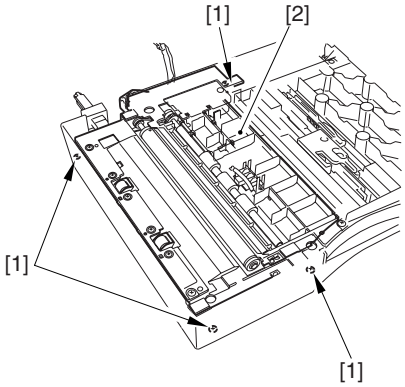
10.4.14.4 Removing the ADF Drive Unit 0006-3977

1) Holding the tab [1], detach the white plate [2].



F-10-155

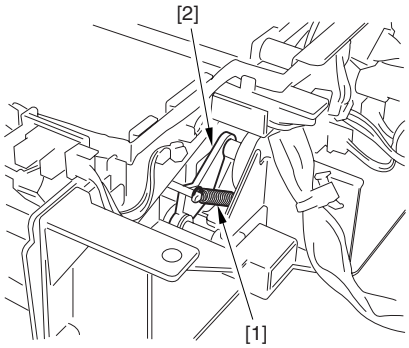
2) Remove the 4 screws [1], and detach the ADF drive unit [2].



F-10-156

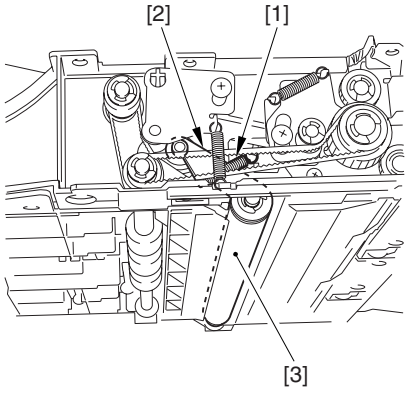
10.4.14.5 Removing the White Roller 0006-3979

1) Remove the spring [1] and the hook [2].



F-10-157

2) Remove the spring [1] and the hook [2], and detach the white roller [3].



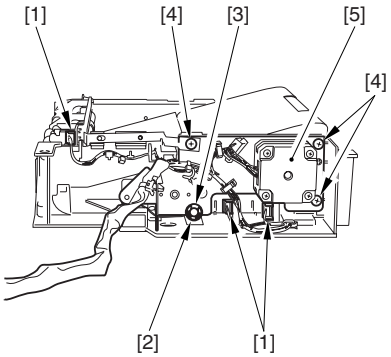
F-10-158

10.4.14.6 Removing the ADF Motor Unit 0006-3936

1) Disconnect the 3 connectors [1].
2) Remove the E-ring [2] and the bushing [3].
3) Remove the 3 screws [4], and detach the ADF motor unit [5].

⚠

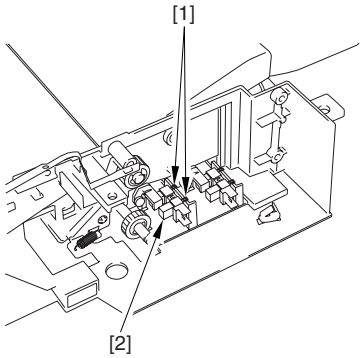
The ADF motor is positioned using a special tool and, therefore, cannot be adjusted in the field. Do not remove the ADF motor from the motor base.



F-10-159

10.4.14.7 Removing the Original Sensor 0006-3938

1) Free the 2 hooks [1], and detach the original sensor [2].

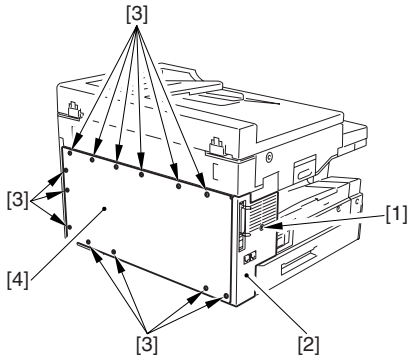


F-10-160

10.4.15 Registration Sensor

10.4.15.1 Removing the Rear Cover 0006-3980

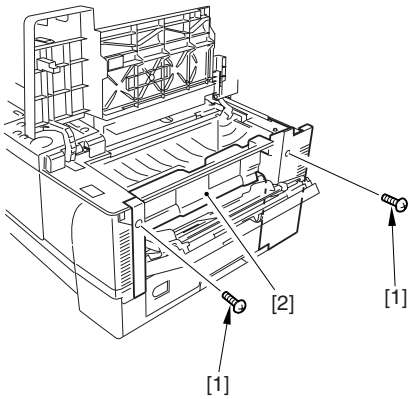
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-161

10.4.15.2 Removing the Right Cover 0006-3981

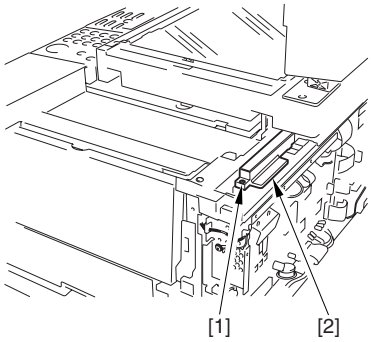
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-162

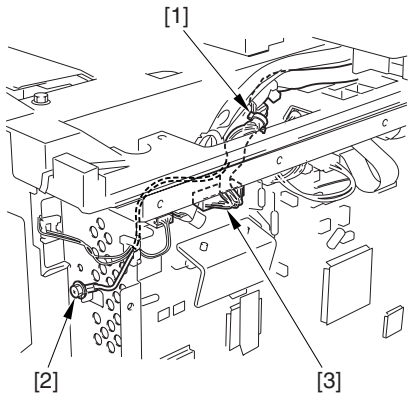
10.4.15.3 Removing the ADF 0006-3982

1) Remove the screw [1], and detach the ADF harness cover [2].



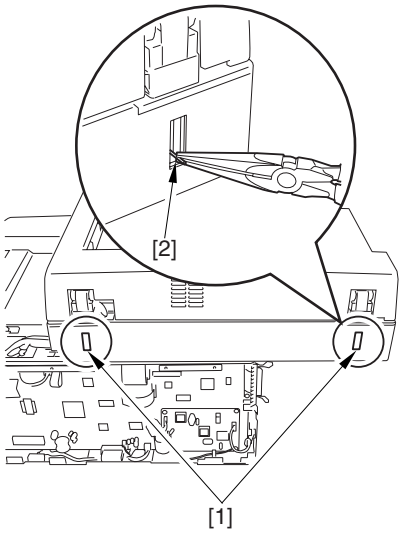
F-10-163

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



F-10-164

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



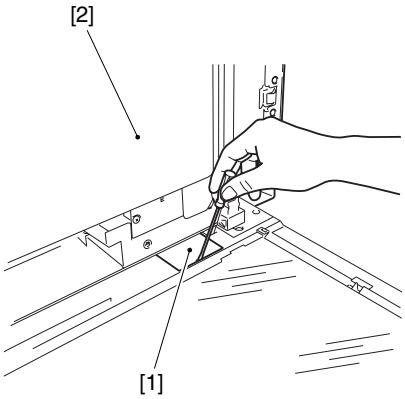
F-10-165

6) Return the reader unit to its initial position.

7) Open the ADF.

8) Using a flat-blade screwdriver, remove the cover [1].

9) Detach the ADF [2] from the host machine.



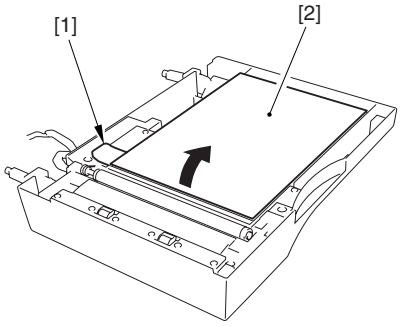
F-10-166

⚠

Take care so that no part will become trapped by harness of the ADF.

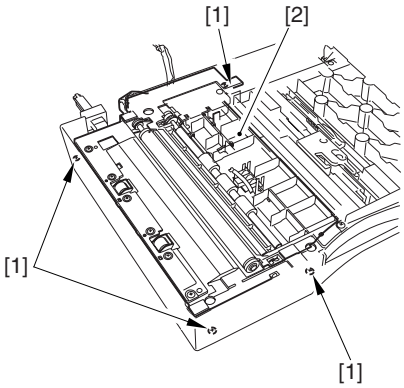
10.4.15.4 Removing the ADF Drive Unit 0006-3983

1) Holding the tab [1], detach the white plate [2].



F-10-167

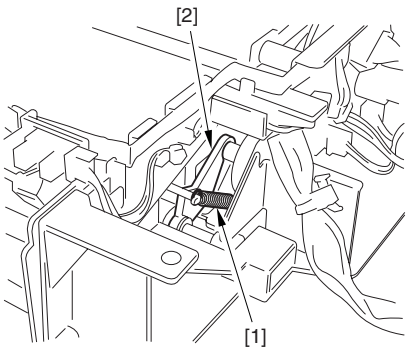
2) Remove the 4 screws [1], and detach the ADF drive unit [2].



F-10-168

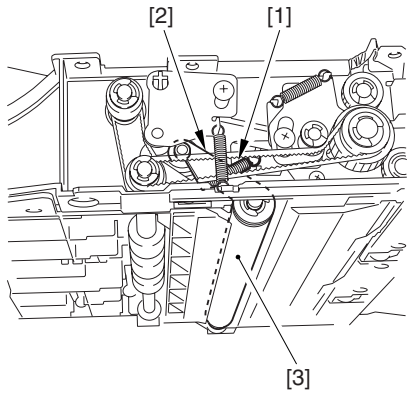
10.4.15.5 Removing the White Roller 0006-3985

1) Remove the spring [1] and the hook [2].



F-10-169

2) Remove the spring [1] and the hook [2], and detach the white roller [3].



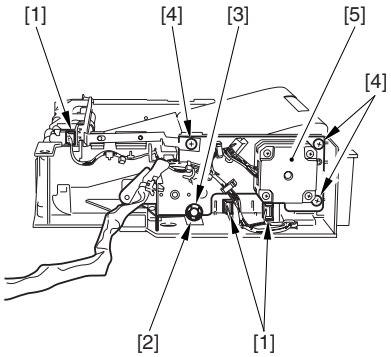
F-10-170

10.4.15.6 Removing the ADF Motor Unit 0006-3939

1) Disconnect the 3 connectors [1].
2) Remove the E-ring [2] and the bushing [3].
3) Remove the 3 screws [4], and detach the ADF motor unit [5].

⚠

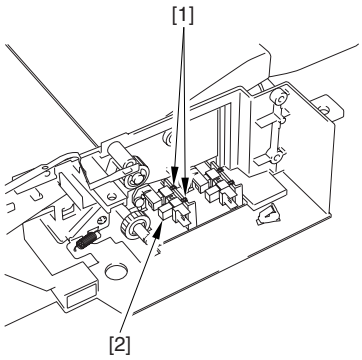
The ADF motor is positioned using a special tool and, therefore, cannot be adjusted in the field. Do not remove the ADF motor from the motor base.



F-10-171

10.4.15.7 Removing the Original Sensor 0006-3940

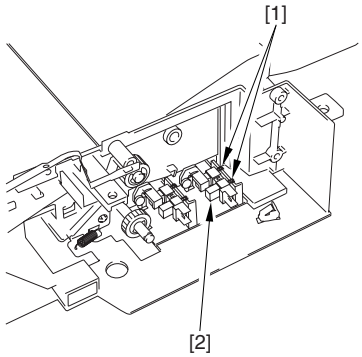
1) Free the 2 hooks [1], and detach the original sensor [2].



F-10-172

10.4.15.8 Removing the Registration Sensor 0006-3941

1) Free the 2 hooks [1], and detach the registration sensor [2].

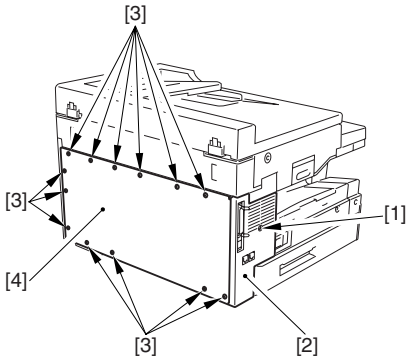


F-10-173

10.4.16 Original Delivery Sensor

10.4.16.1 Removing the Rear Cover 0006-4158

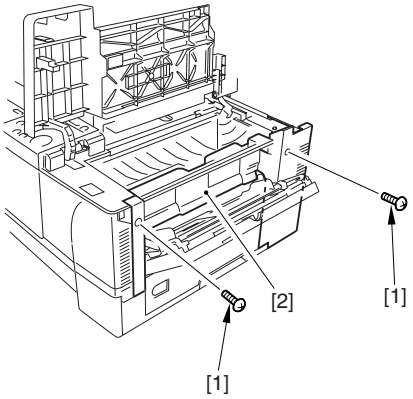
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-174

10.4.16.2 Removing the Right Cover 0006-4159

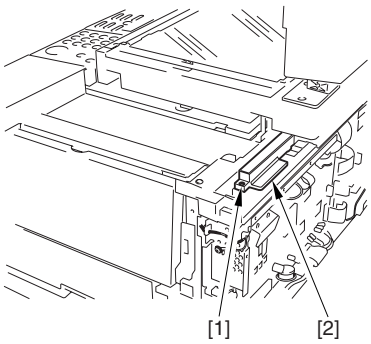
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-175

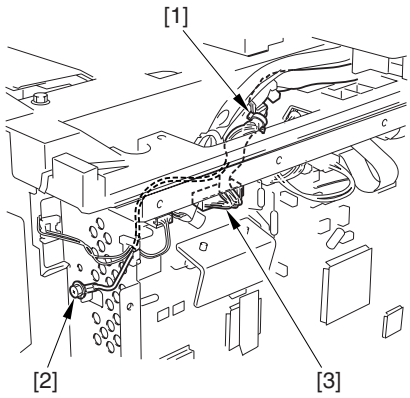
10.4.16.3 Removing the ADF 0006-4161

1) Remove the screw [1], and detach the ADF harness cover [2].



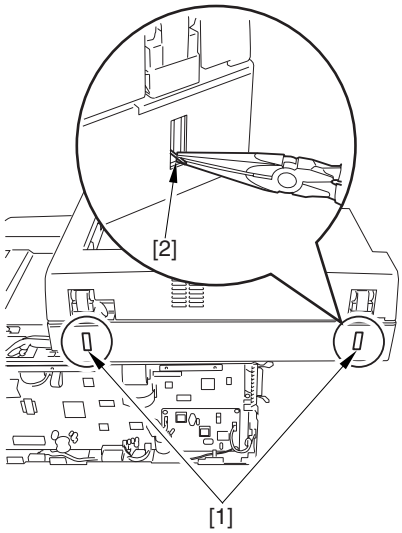
F-10-176

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



F-10-177

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



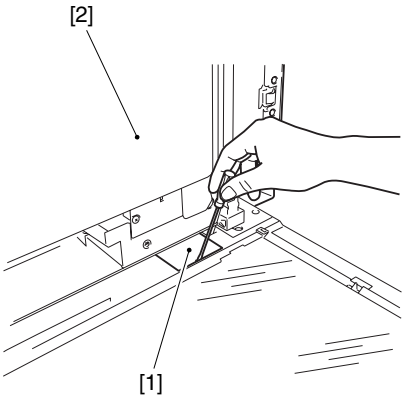
F-10-178

6) Return the reader unit to its initial position.

7) Open the ADF.

8) Using a flat-blade screwdriver, remove the cover [1].

9) Detach the ADF [2] from the host machine.



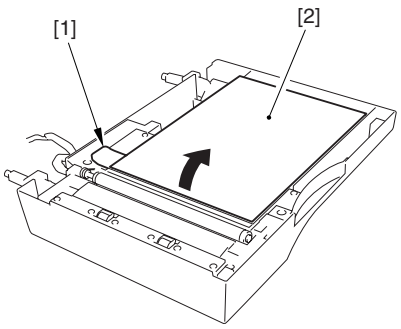
F-10-179

⚠

Take care so that no part will become trapped by harness of the ADF.

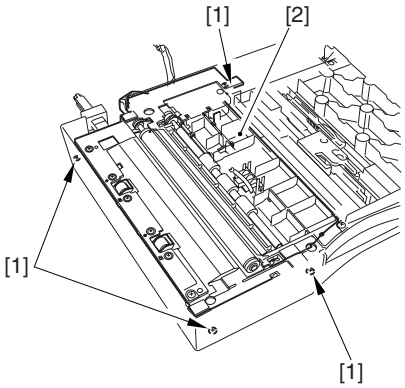
10.4.16.4 Removing the ADF Drive Unit 0006-4162

1) Holding the tab [1], detach the white plate [2].



F-10-180

2) Remove the 4 screws [1], and detach the ADF drive unit [2].

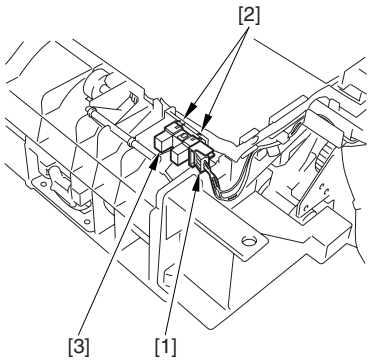


F-10-181

10.4.16.5 Removing the Original Delivery Sensor 0006-4164

2) Disconnect the connector [1].

2) Free the 2 hooks [2], and detach the original delivery sensor [3].



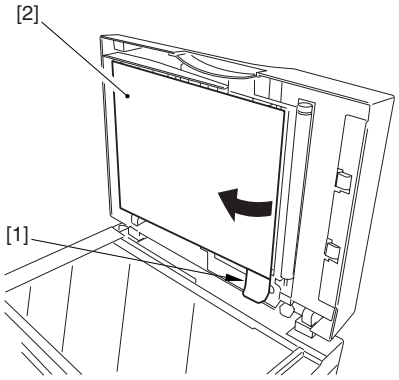
F-10-182

10.4.17 Slide Guide

10.4.17.1 Removing the Slide Guide (front, rear) 0006-3903

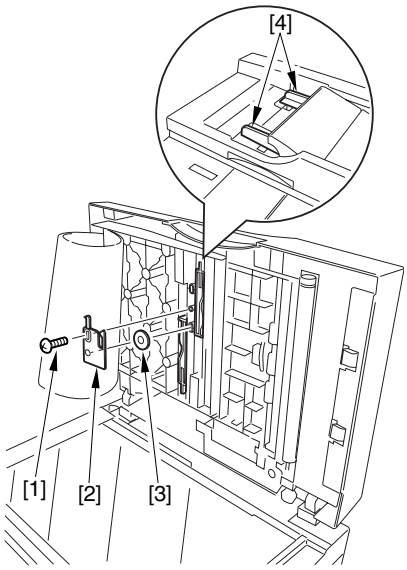
1) Open the ADF.

2) Pick the tab [1], and detach the white plate [2].



F-10-183

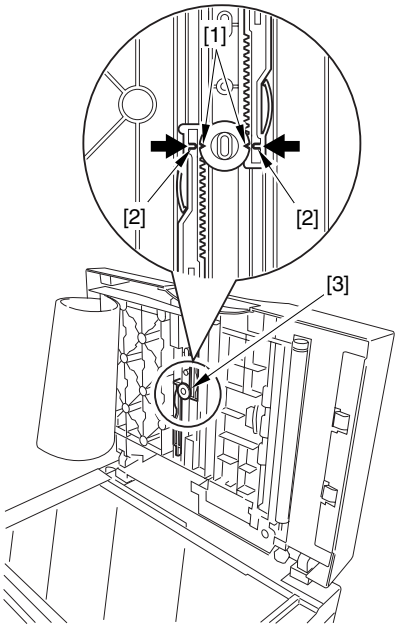
3) Remove the screw [1], slide plate [2], and gear [3]; then, detach the slide guide (front, rear) [4].



F-10-184

10.4.17.2 Mounting the Slide Guide (front, rear) 0006-3910

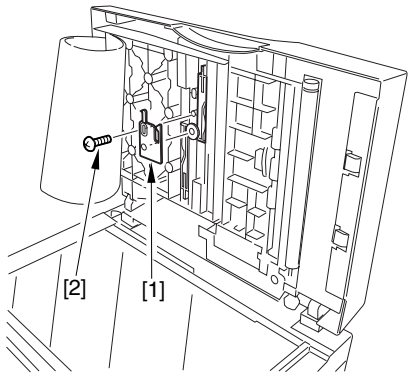
1) Mount the gear [3] while trying to match the 2 cut-offs [1] and the marking [2] on the slide guide (front, rear).



F-10-185

2) While holding down the gear to keep it in place, mount the slide plate [1] and tighten the screw [2]

to secure the plate in place.



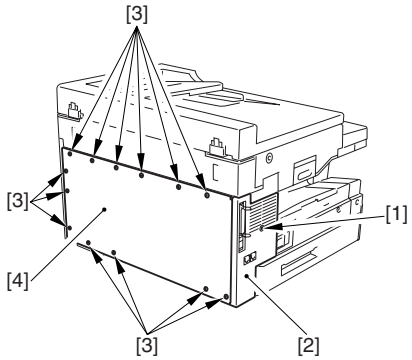
F-10-186

3) Adjust the left/right registration.

10.4.18 Delivery Stacking Tray

10.4.18.1 Removing the Rear Cover 0006-4077

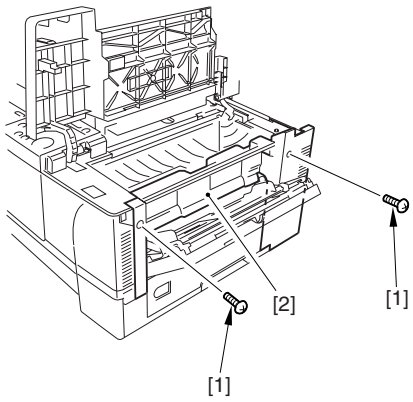
1) Remove the screw [1], and detach the left cover [2].
2) Remove the 13 screws [3], and detach the rear cover [4].



F-10-187

10.4.18.2 Removing the Right Cover 0006-4079

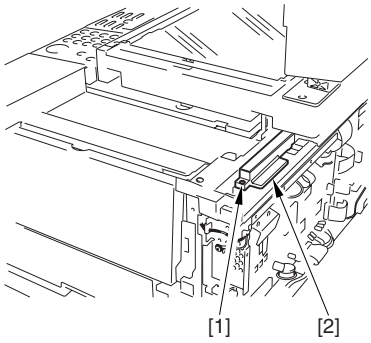
1) Slide the reader unit, and open the cartridge cover.
2) Open the manual feed tray.
3) Remove the 2 screws [1], and detach the right cover [2].



F-10-188

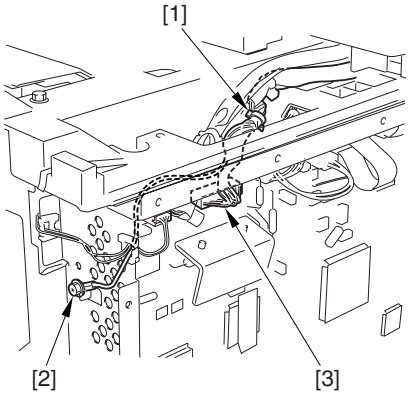
10.4.18.3 Removing the ADF 0006-4080

1) Remove the screw [1], and detach the ADF harness cover [2].



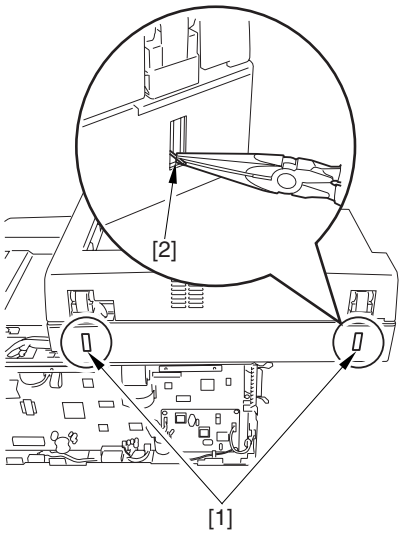
F-10-189

2) Remove the harness retainer [1].
3) Remove the screws [2] and disconnect the grounding wire from the core.
4) Disconnect the connector [3].



F-10-190

5) Using a flat-blade screwdriver or the like, remove the 2 covers [1]; then, using long nose pliers or the like, remove the 2 pins [2].



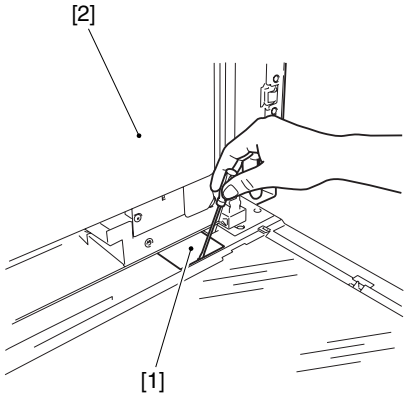
F-10-191

6) Return the reader unit to its initial position.

7) Open the ADF.

8) Using a flat-blade screwdriver, remove the cover [1].

9) Detach the ADF [2] from the host machine.



F-10-192

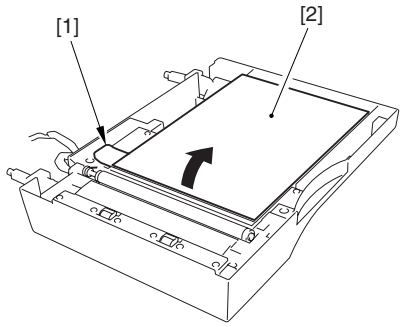
⚠

Take care so that no part will become trapped by harness of the ADF.

10.4.18.4 Removing the ADF Drive Unit

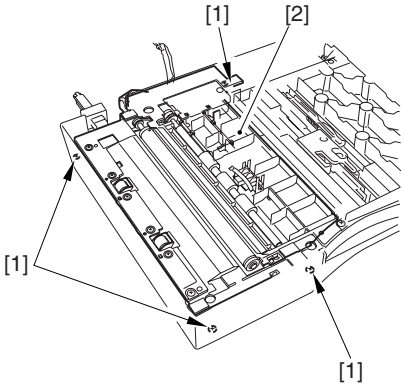
0006-4081

1) Holding the tab [1], detach the white plate [2].



F-10-193

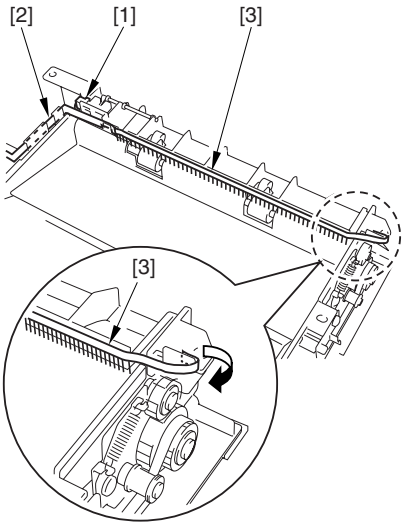
2) Remove the 4 screws [1], and detach the ADF drive unit [2].



F-10-194

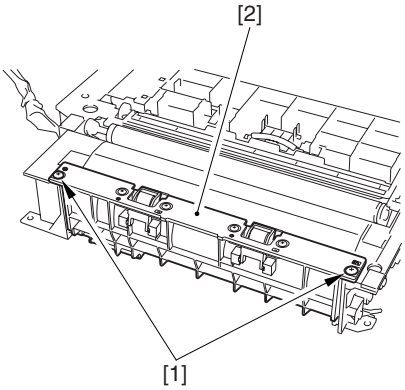
10.4.18.5 Removing the Feeding Outside Guide 0006-4085

1) Disconnect the connector [1], and detach the grounding plate [2].
2) Remove the static eliminator [3] as much as shown.



F-10-195

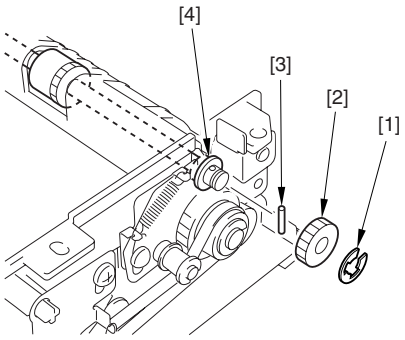
3) Remove the 2 screws [1], and detach the feeding outside guide [2].



F-10-196

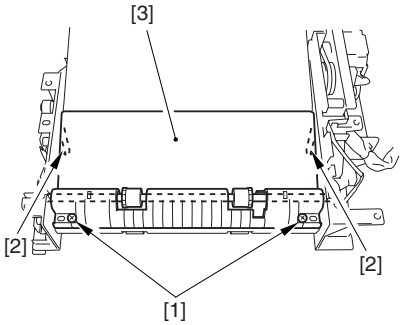
10.4.18.6 Removing the Delivery Stacking Tray 0006-4086

1) Remove the E-ring [1], gear [2], pin [3], and bushing [4].



F-10-197

2) Remove the 2 screws [1], and free the 2 hooks [2].
3) Remove the delivery stacking tray [3].



F-10-198

Chapter 11 Maintenance and Inspection

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11.1 Periodically Replaced Parts

11.1.1 Periodically Replaced Parts

0006-3064

The machine does not have parts that require periodical replacement.

11.2 Durables and Consumables

11.2.1 Durables

0006-3067

The machine does not have durables that require replacement once or more during the life of the product because of wear or damage.

11.3 Scheduled Servicing Basic Procedure

11.3.1 Scheduled Servicing Chart

0006-3069

The machine does not have items (parts or durables) that require scheduled servicing. To help prolong the life of the product and its parts, it is recommended that the following be performed at time of a service visit.

T-11-1

As of August 2002

Work Procedure

1. Question key person in charge, and obtain a general idea of the issue.
2. Make repairs of any faults.
3. Make test copies, and check the output for the following:

   (1) image density against standards, (2) soiling of the background, (3) clarity of characters, (4) margin, (5) fixing, faulty registration, soiling of the back of the page.

   Standards for Margin (single-sided)

   Leading edge: 3.0 -/+ 2.0 mm (0.12" -/+ 0.08")

   Left/right edge: 2.5 -/+ 2.0 mm (0.10" -/+ 0.08")
4. Clean the parts: As needed, remove the cartridge before starting the work.
5. Make test copies.
6. Clean up the area around the machine.

11.4 Cleaning

11.4.1 Outline

0006-3096

At time of a service visit, clean the items described in 4.1 "Cleaning by the User (machine)" ; then, perform the following as needed:

⚠

Do not clean the photosensitive drum.

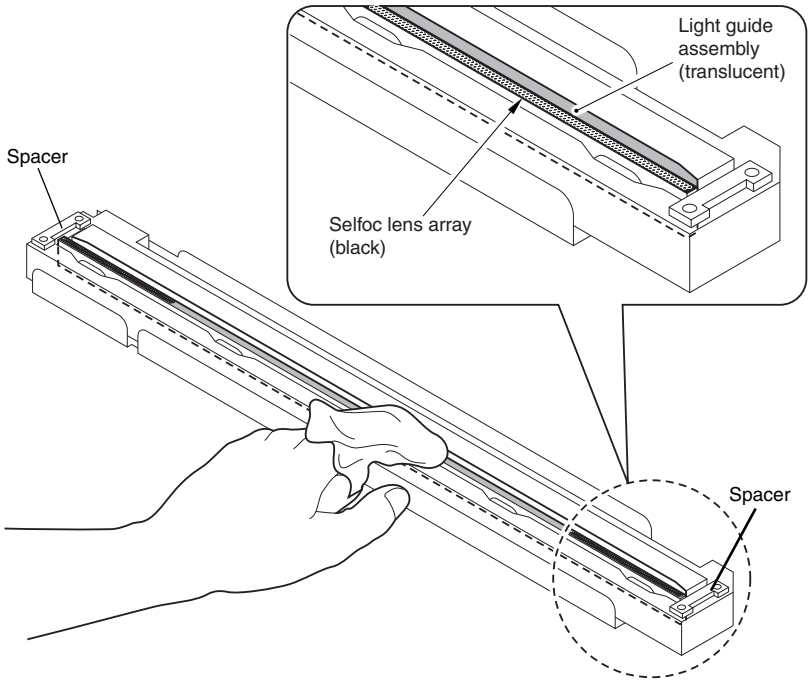
11.4.2 Selfoc Lens Array of the Contact Sensor

0006-3097

⚠

1. If the face of the light guide assembly becomes soiled or scratched, its optical characteristics will be affected. Do not touch the light guide assembly.
2. The contact sensor is vulnerable to static charges. Be sure to provide measures against static damage before touching it.
3. Be sure to fit back the spacer after the cleaning work; otherwise, the contact sensor may not work properly.

Lightly remove any dirt with a dry, soft cloth.



F-11-1

11.4.3 Cassette Pickup Roller

0006-3098

Clean it with a cloth moistened with water (and wrung well). If the dirt is excessive, use alcohol with lint-free paper thereafter, be sure to dry wipe it with a cloth or lint-free paper.

11.4.4 Manual Feed Pickup Roller

0006-3100

Dry wipe it with a cloth moistened with water (and wrung well). If the dirt is excessive, use alcohol with lint-free paper thereafter, be sure to dry wipe it with a cloth or lint-free paper.

11.4.5 Separation Pad

0006-3101

Dry wipe it with lint-free paper.

11.4.6 Registration Roller

0006-3103

Clean it with a cloth moistened with water (and wrung well). If the dirt is excessive, use alcohol with lint-free paper thereafter, use a cloth or lint-free paper.

11.4.7 Transfer Guide

0006-3104

Clean it with a cloth moistened with water (and wrung well) thereafter, dry wipe it with a cloth or lint-free paper.

11.4.8 Transfer Charging Roller

0006-3105

As a rule, do not touch or clean it. However, if cleaning proves necessary as when the cause of an image fault is the transfer roller, clean it while taking care not to handle the roller or not to subject it to solvent or oils.
Use lint-free paper and dry wipe it. Do not use water or solvent. During cleaning, take care not to impose force on the rubber area of the transfer charging roller.

11.4.9 Separation Static Eliminator

0006-3106

Clean it with a blower brush.

11.4.10 Paper Path

0006-3107

Dry wipe it with lint-free paper.

11.4.11 Fixing Inlet Guide

0006-3108

Use alcohol with a soft cloth.

11.4.12 Fixing Pressure Roller

0006-3109

If dirt cannot be removed by executing fixing pressure roller cleaning from the Additional Functions menu, use alcohol and a soft cloth.

11.4.13 Delivery Roller

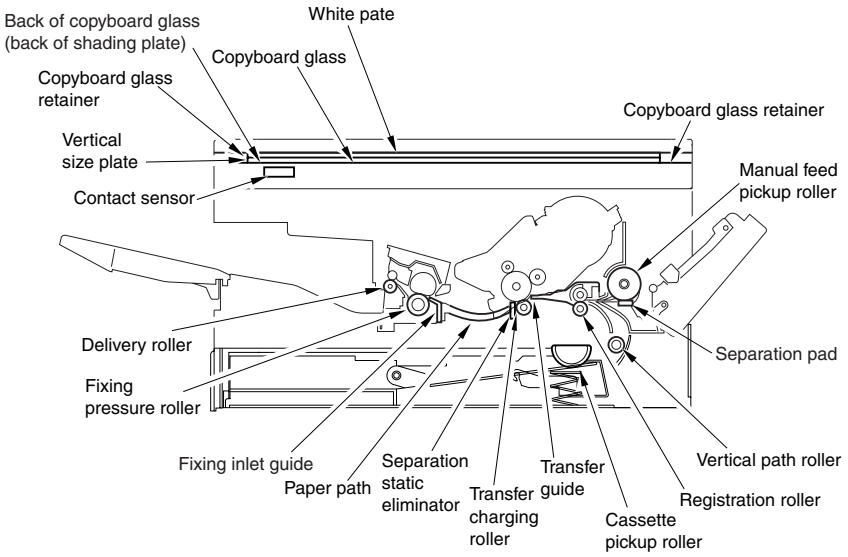
0006-3110

Clean it with a cloth moistened with water (and wrung well). If the dirt is excessive, use alcohol and lint-free paper thereafter, dry wipe it with a cloth or lint-free paper.

11.4.14 Back of Copyboard Glass (Back of Shading Plate)

0006-3111

Wipe it with a cloth moistened with water (and wrung well); then, dry wipe it with a cloth or lint-free paper.



F-11-2

11.4.15 Original Pickup Roller (ADF)

0006-3112

Clean it with a cloth moistened with water (and wrung well). If dirt is excessive, use alcohol with lint-free paper thereafter, dry wipe it with a cloth or lint-free paper.

11.4.16 Original Separation Roller (ADF)

0006-3113

Clean it with a cloth moistened with water (and wrung well). if the dirt is excessive, use alcohol with lint-free paper thereafter, dry wipe it with a cloth or lint-free paper.

11.4.17 Original Separation Pad (ADF)

0006-3115

Clean it with a cloth moistened with water (and wrung well). If the dirt is excessive, use alcohol and lint-free paper

thereafter, dry wipe it with a cloth or lint-free paper.

11.4.18 ADF Registration Roller (ADF) 0006-3116

Clean it with a cloth moistened with water (and wrung well). If the dirt is excessive, use alcohol and lint-free paper thereafter, dry wipe it with a cloth or lint-free paper.

11.4.19 Original Feed Roller (ADF) 0006-3117

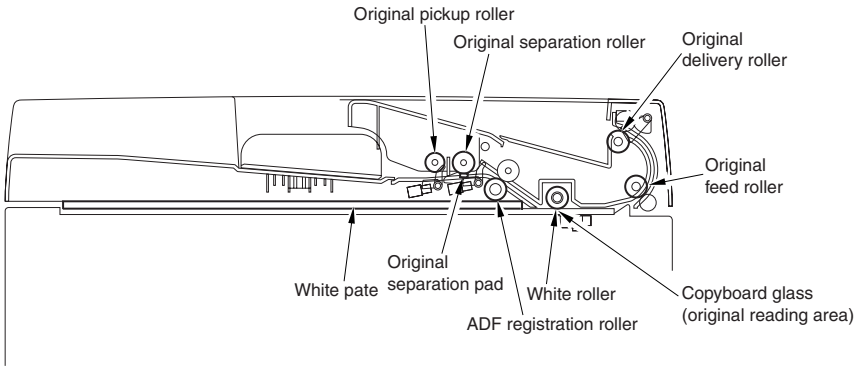
Clean it with a cloth moistened with water (and wrung well). If the dirt is excessive, use alcohol and lint-free paper thereafter, dry wipe it with a cloth or lint-free paper.

11.4.20 Original Delivery Roller (ADF) 0006-3118

Clean it with a cloth moistened with water (and wrung well). If the dirt is excessive, use alcohol and lint-free paper thereafter, dry wipe it with a cloth or lint-free paper.

11.4.21 Copyboard Glass (Original Reading Area) (ADF) 0006-3119

Wipe it with a cloth moistened with water (and wrung well); then, dry wipe it with a cloth or lint-free paper.



F-11-3

Chapter 12 Standards and Adjustments

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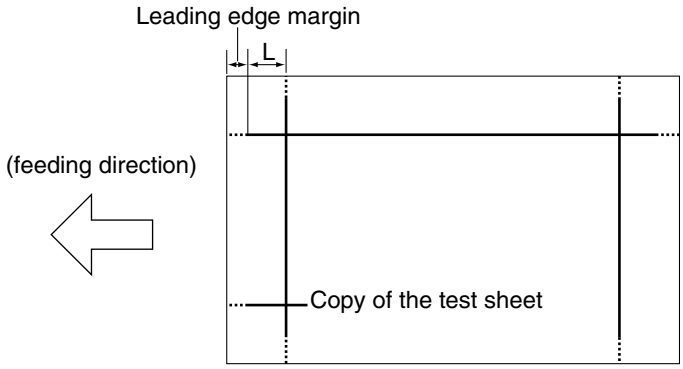
12.1 Image Adjustments

12.1.1 Leading Edge Read Start Position Adjustment

0006-3194

Adjust the leading edge read start position for book mode as follows:

1) Make a copy of the test sheet in book mode on paper of the same size in Direct.
2) Measure the length of L on the copy (i.e., the length obtained by subtracting the leading edge margin from the line found 10 mm from the leading edge; it must be 7 -/+ 0.5 mm).



F-12-1

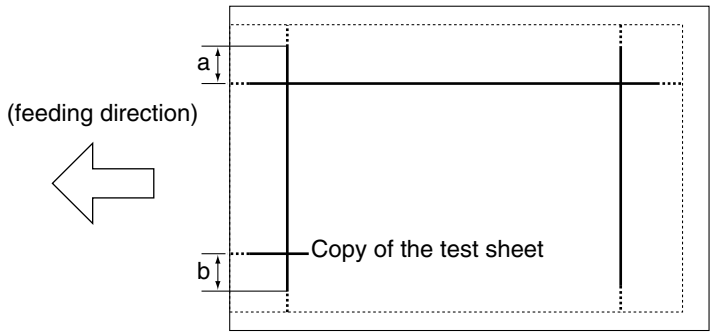
3) Press the Additional Functions key and the # key to start service mode.
4) Press the left/Right Arrow key so that '#6 SCANNER' is indicated.
5) Press the OK key.
6) Press the Left/Right Arrow key so that '7: CCD' is indicated.
7) Press the OK key.
8) Press the Left/Right Arrow key so that the 2nd row of the LCD indicates '023:'.
9) Enter an appropriate correction value using the Left/Right Arrow key so that the length of L measured in step 2 is 7 mm. (An increase by '1' will decrease the length of L by about 0.1 mm.)
10) Press the OK key.
11) Press the Stop key (to end SCANNER).
12) Make a copy of the test sheet in book mode on paper of the same size in Direct; then, check to make sure that the length of L is as indicated.
13) End the work if the length of L is as indicated; otherwise, start over with step 2).

12.1.2 Left/Right Edge Read Start Position Adjustment

0006-3195

Adjust the left/right edge read start position for book mode as follows:

1) If LTR paper is available, prepare a test sheet using LTR paper. If no LTR paper is available, cut a larger sheet of paper so that its width is 216 mm; then, prepare a test sheet as instructed in 1.2.2, making sure that the width is 216 mm; as for its length, make sure that it fits the copyboard glass.
2) Make a copy of the sheet in book mode on paper of the same size to a reduction ratio of 80%.
3) Measure the length of b-a of the copy, and check to make sure that it is as indicated. (It must be 0 +/- 0.4 mm.)



F-12-2

4) Press the Additional Functions key and the # key to start service mode.
5) Press the Left/Right Arrow key so that '#6 SCANNER' is indicated.
6) Press the OK key.
7) Press the Left/Right Arrow key so that '7: CCD' is indicated.
8) Press the OK key.
9) Press the Left/Right Arrow key so that the 2nd row of the LCD indicates '021:'.
10) Enter an appropriate correction value on the keypad so that the length of b-a measured in step 2) is as indicated. (An increase by '1' will decrease the length of b by about 0.03 mm while increasing the length of a by about 0.03 mm.)
11) Press the OK key.
12) Press the Stop key (to end SCANNER).
13) Make a copy of the test sheet in book mode on paper of the same size; then, check to make sure that the length of L on the copy is as indicated.
14) End the work if the length of L is as indicated; otherwise, start over with step 2).

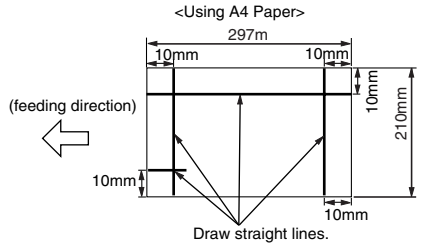
12.2 Scanning System

12.2.1 Preparing a Test Sheet for Adjustment

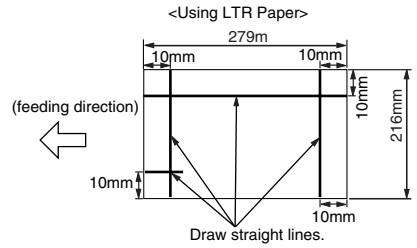
0006-3145

You will need to prepare a test sheet as follows for adjustments (except contact sensor LED intensity auto adjustment); refer to fllowing illustrations for the specifics:

Preparing a Test Sheet: On a sheet of A4 or LTR paper, draw straight lines as indicated:



F-12-3



F-12-4

12.2.2 Contact Sensor LED Intensity Auto Adjustment

0006-3152

⚠

Before starting adjustment, verify that there is nothing on the copyboard glass. Also verify that the ADF (copyboard cover) is securely closed.

Execute auto adjustment of the contact sensor LED intensity as follows:

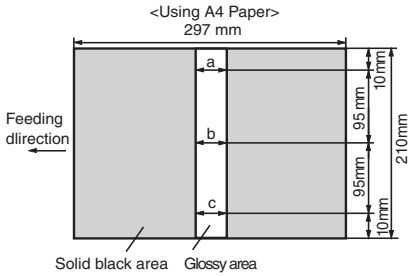
1) Press the Additional Functions key and the # key to start service mode.
2) Press the Left/Right Arrow key so that 'TEST MODE' is indicated.
3) Press the OK key.
4) Press '2' on the keypad so that 'TEST MODE' is indicated.
5) Press '7' on the keypad to clear the CCD parameter.
6) Press the Stop key to return to 'TEST MODE'.
7) Press '2' on the keypad so that '2: CCD TEST' is indicated.
8) Press '8' on the keypad so that the machine starts contact sensor LED intensity auto adjustment.
9) End the work when the LCD indicates 'OK'; if it indicates 'NG', on the other hand, start over.
10) Press the Stop key and the Additional Functions key (to end TEST MODE).

12.3 Fixing System

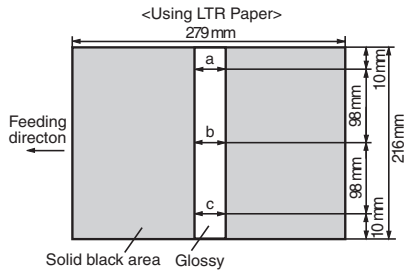
12.3.1 Nip Adjustment 0006-3121

A fixing fault can occur if the nip of the fixing assembly is not correct. The machine is not equipped with a mechanism to adjust the nip; if a fixing fault occurs, be sure to check the nip as follows, and replace the fixing assembly if it is not as indicated:

1) Execute 'PRINT test' under 'test mode' in service mode to make a solid black copy on A4 or LTR paper.
2) With the black side facing down, place the solid black copy in the manual feed tray and make a copy using manual feed tray.
3) Turn off the power as soon as the leading edge of the paper appears in the delivery tray, and leave the machine alone for about 10 sec.
4) Take out the cartridge, and remove the paper from the pickup side as if it was a jam.
5) Measure the width of the area of glossy toner on the paper, and see that it is as indicated in fllowing illustrations.



F-12-5



F-12-6

T-12-1

	Dimension
a	5.5 +/- 0.5 mm
|c-a|	0.5 mm or less
|b-a|	0.5 mm or less
|b-c|	0.5 mm or less

12.4 Electrical Components

12.4.1 Outline

0006-3125

You need to make the following adjustments whenever you have replaced the machine's major parts.

⚠

Be sure to make the appropriate adjustments if you have replaced a specific major part.

T-12-2

Part replaced	Item of adjustment
Image processor PCB	all adjustments, including ADF adjustment
Contact sensor	contact sensor LED intensity auto adjustment

⚠

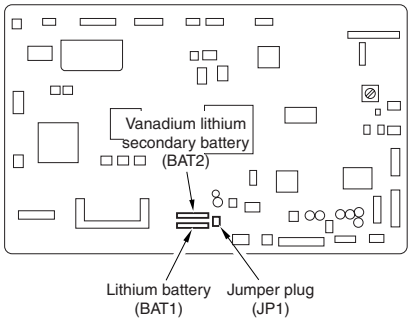
To replace the image processor PCB, be sure to work according to the instructions given for the replacement of the image processor PCB.

12.4.2 When Replacing the Image Processor PCB

0006-3239

Perform the following if you have replaced the image processor PCB:

1) If the machine is equipped with fax functions, print out the following and all received images: system data list, 1-touch/speed/group dial list, user data list, activity report, system dump list.
2) Turn off the power.



F-12-7

⚠

When the jumper plug (JP1) is removed, all data in control memory will be lost. Therefore, do not disconnect the jumper plug (JP1). The data stored in the SRAM is as follows:

- user data (data indicating user mode settings)
- service mode deta (data indicating service mode settings)
- control data (communications control record of most recent 20 communications, system dump record)

After Finishing the Work

1) Connect the jumper plug (JP1) of the image processor PCB (service part; one side of the pin is disconnected; try connecting both its feet).
2) Turn on the power; then, when 'DATA ERROR' is indicated, press the OK key.
3) Enter the user data and the service mode data.
4) Make various adjustments for the electrical system of the machine.
5) If the machine is equipped with ADF functions, make various adjustments for the ADF.

12.5 ADF

12.5.1 Outline

12.5.1.1 Items of Adjustment and Sequence of Work 0006-3197

The ADF must be adjusted for the following items and in the following sequence of work:

⚠

1. If you have replaced major parts of the ADF, you must always execute the following: registration arch auto adjustment, original read position adjustment. Then, check to make sure that the settings of other items of adjustment are as indicated; if not, make adjustments starting with the preceding item of adjustment.
2. Each item of adjustment affects the subsequent items of adjustment. If you have made adjustments, therefore, be sure to check that the setting of the item of adjustment that follows is also as indicated; if not, be sure to start over with the preceding item.

T-12-3

Sequence	Item of adjustment
1	registration arch auto adjustment
2	skew removal
3	original read position adjustment
4	original feed speed adjustment
5	leading edge read start position adjustment
6	trailing edge read end position adjustment
7	left/right registration adjustment

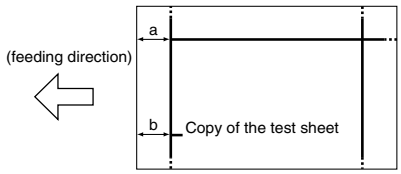
12.5.1.2 Preparing a Test Sheet for Adjustment 0006-3200

When making adjustments (except registration arch auto adjustment and original read position adjustment) for the ADF, you will need a test sheet like the one used for the copier.

12.5.2 Adjusting the Mechanical System

12.5.2.1 Removing the Skew 0006-3202

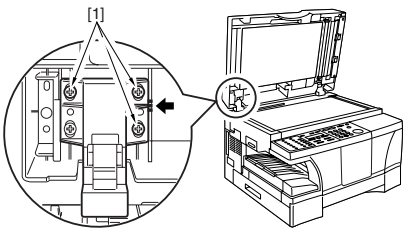
Make a copy of the test sheet using the ADF in Direct, and make sure that the skew is as indicated following illustrations.



F-12-8

b-a: 0 -/+1.3 mm (A4/LTR)

1) Open the ADF.
2) Loosen the 3 screws [1], and move the left hinge up and down so that the skew will be as indicated by referring to the index graduated at 1-mm intervals.



F-12-9

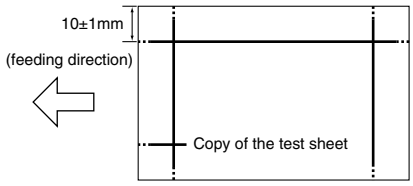
MEMO:

A shift of the ADF upward by 1 mm will increase the registration along the left bottom of the paper by about 0.5 mm.

3) Place A4 (LTR) paper in the cassette or the manual feed tray.
4) Open the ADF, and place an A5 (STMTR) original on the copyboard glass.
5) Close the ADF, and make a copy in Direct.
6) Check the copy image, and check to make sure that the area outside the image is free of fogging.
7) If fogging is found, the position of the white sheet may be wrong; check its positioning. If no fault is found, try skew removal once again.

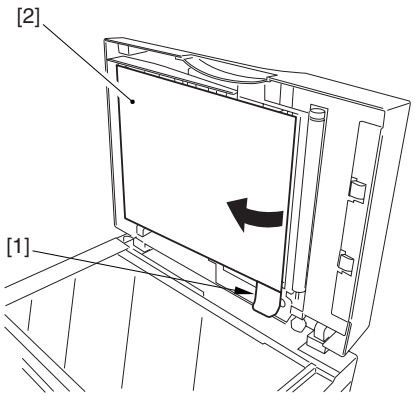
12.5.2.2 Left/Right Registration Adjustment 0006-3205

Using the ADF, make a copy of the sheet in Direct, and check to make sure the left/right registration is 10 +/- 1 mm.



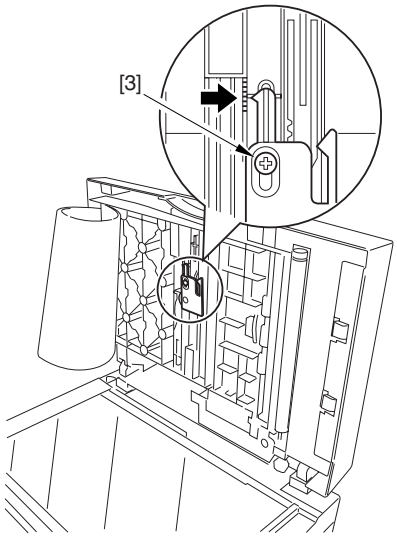
F-12-10

1) Pick the tab [1], and detach the white plate [2].



F-12-11

2) Loosen the screw [3], and move the slide guide to the front/rear with reference to the index graduated at 1-mm intervals until the registration is as indicated.



F-12-12

MEMO:
A shift of the slide guide up by 1 mm will increase the registration on the right (top of paper) by 1 mm.

⚠
Do not remove the screw [3]; otherwise, you must work as instructed for mounting of the slide guide.

12.5.3 Adjusting the Ellectrical System

12.5.3.1 Registration Arch Auto Adjustment 0006-3207

Adjust the registration arch for the ADF registration roller as follows:

1) Press the Additional Functions key and the # key to start service mode.
2) Press the Left/Right Arrow key so that 'TEST

MODE' is indicated.
3) Press '6' on the keypad so that 'FACULTY TEST' is indicated.
4) Press '4' on the keypad so that '6-4 ADF' is indicated.
5) Place 10 sheets of A4 paper in the ADF.
6) Press '8' on the keypad so that the machine will start registration arch auto adjustment.
7) End the work when the LCD indicates 'OK'; if it indicates 'NG', on the other hand, start over the adjustment.
8) Press the Stop key and then the Additional Functions key (to end TEST MODE).

12.5.3.2 Original Read Position Adjustment 0006-3208

Adjust the contact sensor original read position for ADF mode as follows:

⚠

Check to make sure that the ADF is fully closed before starting the work. Moreover, check to be sure of the absence of any object on the copyboard glass.

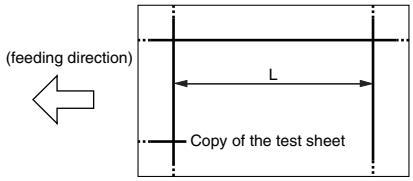
---

1) Press the Additional Functions key and the # key to start service mode.
2) Press the Left/Right Arrow key so that 'TEST MODE' is indicated.
3) Press the OK key.
4) Press '2' on the keypad so that '2: CCD TEST' is indicated.
5) Press '3' so that the machine starts original read position adjustment.
6) End the work when the LCD indicates 'OK'; if it indicates 'NG', on the other hand, start over the adjustment.
7) Press the Stop key and the Additional Functions key (to end TEST MODE).

12.5.3.3 Original Speed Adjustment 0006-3211

Adjust the speed at which originals are moved for ADF mode as follows:

1) Make a copy of the test sheet in ADF mode on paper of the same size in Direct.
2) Measure the length "L" in the middle of the copy output. (It must be 277 -/+ 1 mm for A4, 259 -/+ 1 mm for LTR.)



F-12-13

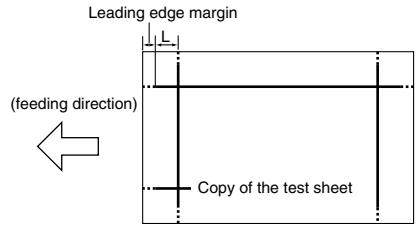
3) Press the Additional Functions key and the # key to start service mode.
4) Press the Left/Right Arrow key so that '#6 SCANNER' is indicated.
5) Press the OK key.
6) Press the Left/Right Arrow key so that '7: CCD' is indicated.
7) Press the OK key.
8) Press the Left/Right Arrow key so that the 2nd row of the LCD indicates '034:'.
9) Enter a appropriate correction value using the Left/ Right Arrow key so that the length of L measured in step 2) is as indicated. (An increase by '1' will increase the length of L by about 0.5 mm.)
10) Press the OK key.
11) Press the Stop key (to end SCANNER).
12) Make a copy of the test sheet in ADF mode on paper of the same size in Direct; then, check to make sure that the length of L of the copy is as indicated.
13) End the work if the length of L is as indicated; otherwise, start over with step 2).

12.5.3.4 Leading Edge Read Start Position Adjustment 0006-3222

Adjust the leading edge start position for ADF mode

as follows:

1) Make a copy of the test sheet in ADF mode on paper of the same size in Direct.
2) Measure the length of L on the copy (i.e., obtained by subtracting the leading edge margin from the position of the line found 10 mm from the leading edge; it must be 7 -/+ 0.5 mm).



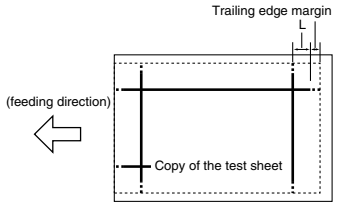
F-12-14

3) Press the Additional Functions key and the # key to start service mode.
4) Press the Left/Right Arrow key so that '#6 SCANNER' is indicated.
5) Press the OK key.
6) Press the Left/Right Arrow key so that '7: CCD' is indicated.
7) Press the OK key.
8) Press the Left/Right Arrow key so that the 2nd row of the LCD indicates '024'.
9) Enter an appropriate correction value using the Left/Right Arrow key so that the length of L measured in step 2) is 7 mm. (An increase of '1' will increase the length of L by about 0.1 mm.)
10) Press the OK key.
11) Press the Stop key (to end SCANNER).
12) Make a copy of the test sheet in ADF mode on paper of the same size in Direct; then, check to make sure that the length of L on the copy is as indicated.
13) End the work if the length of L is as indicated; otherwise, start over with step 2).

12.5.3.5 Trailing Edge Read End Position Adjustment 0006-3229

To adjust the trailing edge margin for ADF mode, go through the following:

1) Make a copy of the test sheet on LGL paper in Direct.
2) Measure the length "L" on the copy output. (standard: 8 -/+ 0.5 mm)



F-12-15

3) Press the Additional Functions key and the # key to start service mode.
4) Press the Left/Right arrow key so that '#6 SCANNER' is indicated.
5) Press the OK key.
6) Press the Left/Right arrow key so that '7: CCD' is indicated.
7) Press the OK key.
8) Press the Left/Right arrow keys so that the 2nd row of the LCD indicates '025:'.
9) Enter a correction value using the Left /Right key so that the length of "L" measured in step 2) is 8 mm (trailing edge margin of 2 mm; an increase by '1' will decrease the length of "L" by about 0.1 mm).
10) Press the OK key.
11) Press the Stop key (to leave 'SCANNER').
12) Make a copy of the Test Sheet in Direct on LGL paper and in ADF mode. Then, check to make use that the length of "L" on the copy is as indicated.
13) If it is as indicated, end the work. Otherwise, start over with step 2).

Chapter 13 Correcting Faulty Images

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13.1 Making lnitial Checks

13.1.1 Outline

0006-3243

A fault that can occur in the machine may be one of the following three: an image fault, a malfunction, a feeding fault. If a fault occurs, make initial checks first; then, isolate the problem according to the troubleshooting flow chart, and take appropriate action with the following in mind:

13.1.2 Making Initial Checks

0006-3244

⚠

1. If you are using a specific terminal of a connector to measure voltage, be sure to check that the connector is not suffering from poor contact.
2. If you are handling a PCB or the contact sensor, be sure to touch a metal portion of the machine before starting the work to avoid static damage.
3. The machine's laser scanner unit cannot be adjusted in the field. Do not disassemble it.

13.1.3 Site Environment

0006-3247

a. The power source must provide the rated voltage -/+ 10%.
b. The site must be free of high temperature/humidity (not near a water faucet, water boiler, humidifier), and must not be in a cold place, near a source of fire, or subject to dust.
c. The site must be free of ammonium gas.
d. The site must be free of direct rays of the sun; otherwise, it must be provided with curtains.
e. The site must be well ventilated.
f. The machine must be level.
g. If the machine is equipped with fax functions, it must remain powered day and night.

13.1.4 Checking the Drum Unit

0006-3248

If the surface of the photosensitive drum has scratches, replace the drum unit.

13.1.5 Checking the Paper

0006-3250

a. Is the paper of a recommended type?
b. Is the paper moist? Try fresh paper out of package.

13.1.6 Others

0006-3251

When a machine is brought from a cold to warm place, its inside can start to develop condensation, leading to various

problems; for example,

a. condensation in the charging roller system tends to cause electrical leakage.

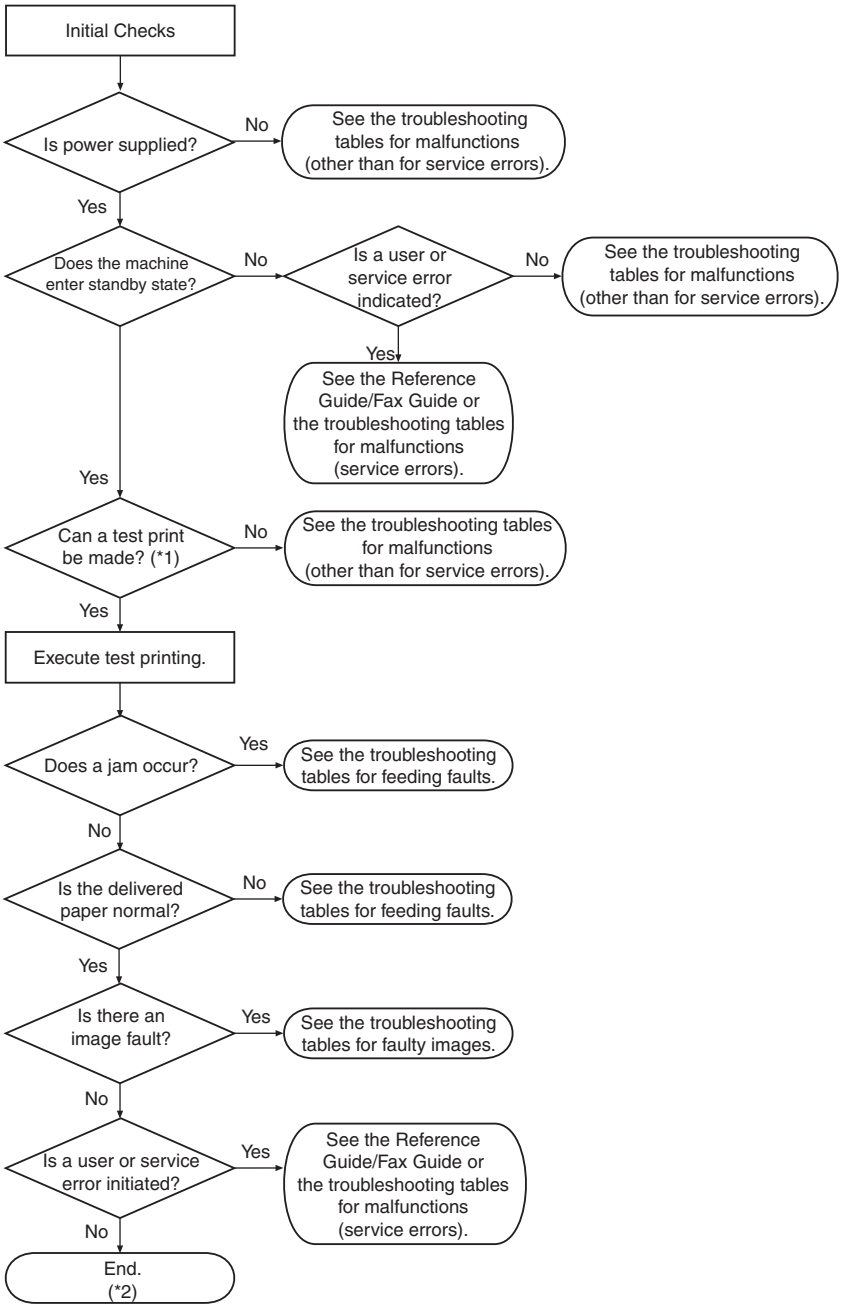
b. condensation on the pickup/feed path tends to cause a feeding fault.

If condensation occurs, dry wipe the parts or leave the machine ON for 60 min.

13.1.7 Troubleshooting Flow Chart

0006-3264

After going through the initial checks, try to isolate the problem using the following flow chart, and take appropriate action:


Initial Checks
Is power supplied?
No
See the troubleshooting tables for malfunctions (other than for service errors).
Yes
Does the machine enter standby state?
No
Is a user or service error indicated?
No
See the troubleshooting tables for malfunctions (other than for service errors).
Yes
See the Reference Guide/Fax Guide or the troubleshooting tables for malfunctions (service errors).
Yes
Can a test print be made? (*1)
No
See the troubleshooting tables for malfunctions (other than for service errors).
Yes
Execute test printing.
Does a jam occur?
Yes
See the troubleshooting tables for feeding faults.
No
Is the delivered paper normal?
No
See the troubleshooting tables for feeding faults.
Yes
Is there an image fault?
Yes
See the troubleshooting tables for faulty images.
No
Is a user or service error initiated?
Yes
See the Reference Guide/Fax Guide or the troubleshooting tables for malfunctions (service errors).
No
End. (*2)

F-13-1

*1: When executing test printing, be sure to select the source of paper used by the user when the fault occurred.

*2: For malfunctions related to the ADF, see the descriptions of faults unique to machines equipped with ADF functions. Likewise, if a malfunction occurs while printing from a PC or a fax communication, see its respective section (those unique to printer functions or those unique to fax functions).

13.1.8 Making Checks in Response to an Image Fault

0006-3265

When you have indicated an image fault using the troubleshooting flow chart, go through the following before starting troubleshooting work that follows:

Checking the Originals Against the Symptom

Determine whether the fault is caused by the machine or the original:

a. The copy density is best set to index 5 -/+ 2.

b. Originals with a bluish background tend to cause poor contrast; e.g., blue sheet, receipts.

c. The density of the original affects its copies: e.g., a diazo copy original or an original with a high transparency can produce output that can be mistaken for "foggy copies," while originals prepared in light pencil can produce output that can be mistaken for "light" copies.

Copyboard Glass and White Sheet

If the copyboard glass or the white sheet is soiled, wipe it with a moist cloth and then dry wipe it. If the dirt is excessive, use alcohol and lint-free paper. If there are scratches, replace it.

13.1.9 Checking the Photointerrupters

0007-3728

Use 'SENSOR' under 'TEST MODE' in service mode to check photointerrupters as follows:

1) Press the Additional Functions key and the # key to start service mode.

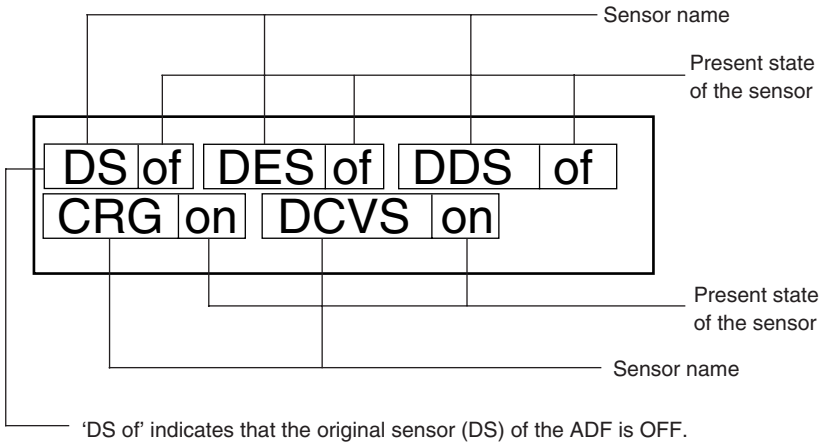
2) Press the Left/Right Arrow key so that 'TEST MODE' is indicated.

3) Press '6' on the keypad so that '6: FACULTY TEST' is indicated.

4) Press '3' on the keypad to start sensor check mode, in which the following screen appears:

F-13-2

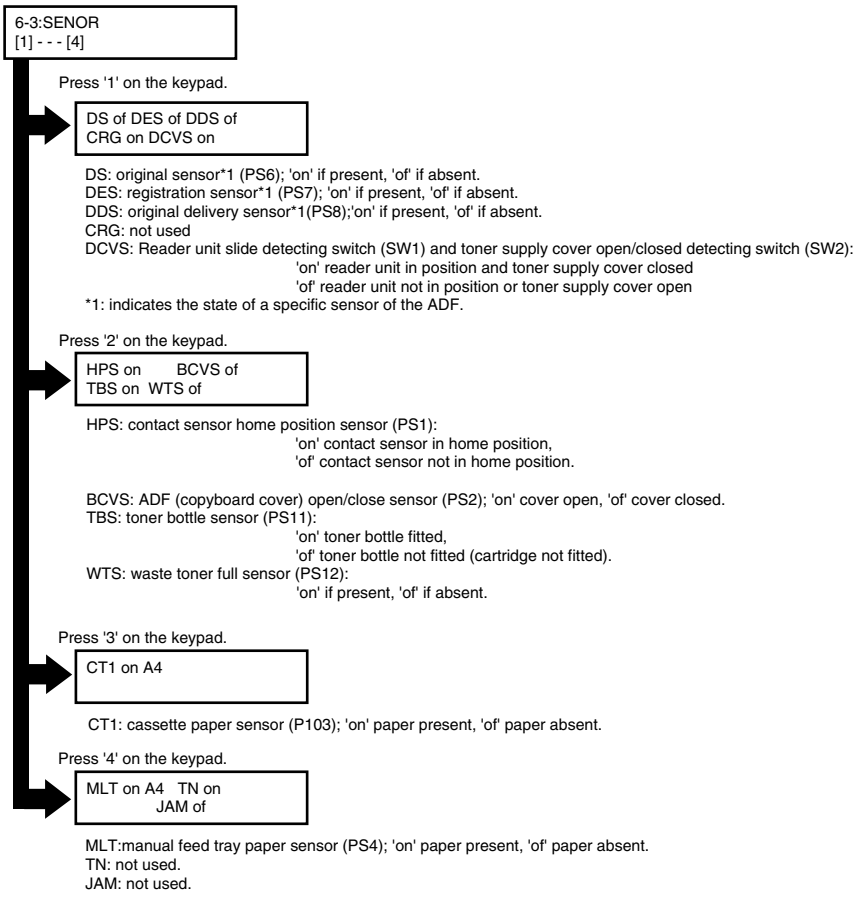
5) When the screen shown in the foregoing figure is displayed, press '1', '2', '3', or '4' to bring up the State screen of a specific sensor. For instance, when '1' is pressed, the following will be true:


Sensor name
Present state of the sensor
DS of DES of DDS of
CRG on DCVS on
Present state of the sensor
Sensor name
'DS of' indicates that the original sensor (DS) of the ADF is OFF.

F-13-3

6) Move the flag of the sensor to see that the indication alternates between 'of' and 'on'to indicate that the sensor is going OFF and ON.

On the next page, the screens that appear when '1' through '4' are pressed are shown together with the sensor names and the sensor states when the machine is in standby state.


6-3:SENOR
[1] - - - [4]
Press '1' on the keypad.
DS of DES of DDS of
CRG on DCVS on
DS: original sensor*1 (PS6); 'on' if present, 'of' if absent.
DES: registration sensor*1 (PS7); 'on' if present, 'of' if absent.
DDS: original delivery sensor*1(PS8);'on' if present, 'of' if absent.
CRG: not used
DCVS: Reader unit slide detecting switch (SW1) and toner supply cover open/closed detecting switch (SW2):
'on' reader unit in position and toner supply cover closed
'of' reader unit not in position or toner supply cover open
*1: indicates the state of a specific sensor of the ADF.
Press '2' on the keypad.
HPS on BCVS of
TBS on WTS of
HPS: contact sensor home position sensor (PS1):
'on' contact sensor in home position,
'of' contact sensor not in home position.
BCVS: ADF (copyboard cover) open/close sensor (PS2); 'on' cover open, 'of' cover closed.
TBS: toner bottle sensor (PS11):
'on' toner bottle fitted,
'of' toner bottle not fitted (cartridge not fitted).
WTS: waste toner full sensor (PS12):
'on' if present, 'of' if absent.
Press '3' on the keypad.
CT1 on A4
CT1: cassette paper sensor (P103); 'on' paper present, 'of' paper absent.
Press '4' on the keypad.
MLT on A4 TN on
JAM of
MLT:manual feed tray paper sensor (PS4); 'on' paper present, 'of' paper absent.
TN: not used.
JAM: not used.

F-13-4

⚠

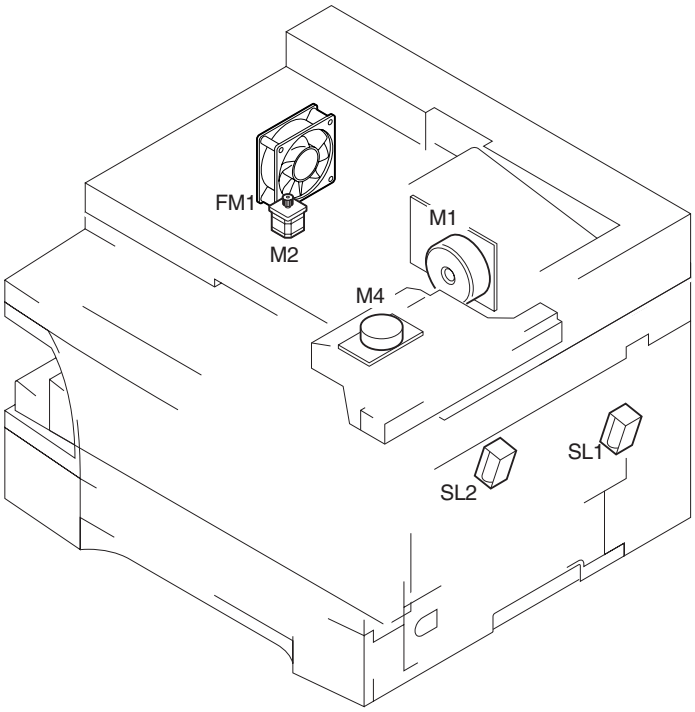
The paper leading edge sensor (PS102), LGL paper sensor (PS101), and delivery sensor (PS3) cannot be checked by running a sensor test.

13.2 Outline of Electrical Components

13.2.1 Clutch/Solenoid

13.2.1.1 Body

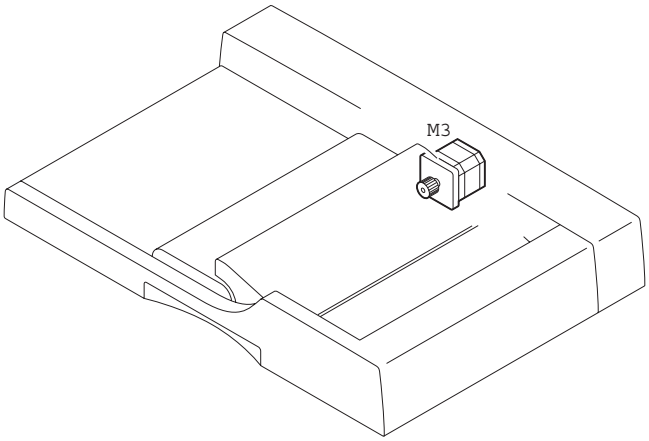
0006-3490



F-13-5

13.2.1.2 ADF

0006-3492



F-13-6

T-13-1

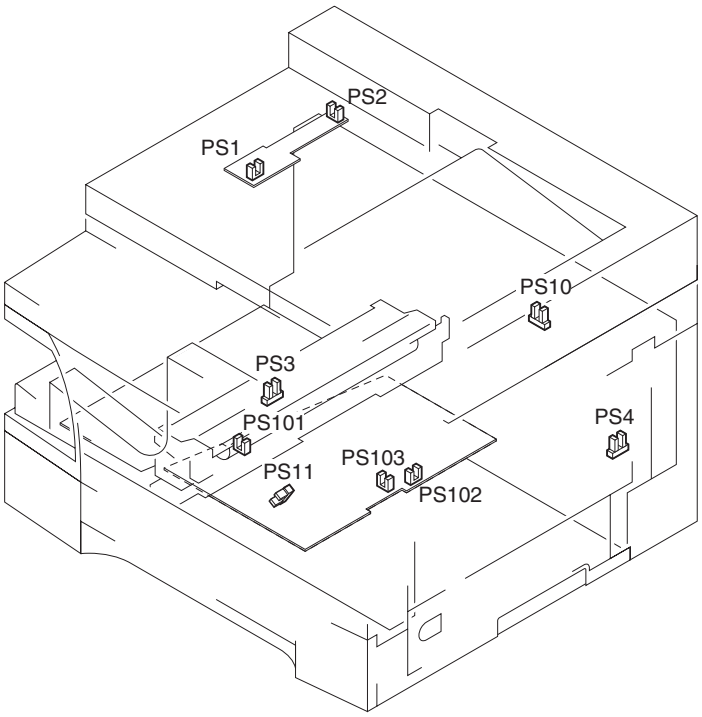
Solenoids, Motors, and Fans

Symbol	Name	Notation	Description
	Solenoid	SL1	manual feed pickup roller drive
		SL2	cassette pickup roller drive
	Motor	M1	main motor
		M2	reader motor
		M3	ADF motor (if equipped with ADF functions)
		M4	laser scanner motor
	Fan	FM1	fan

13.2.2 Sensor

13.2.2.1 Body

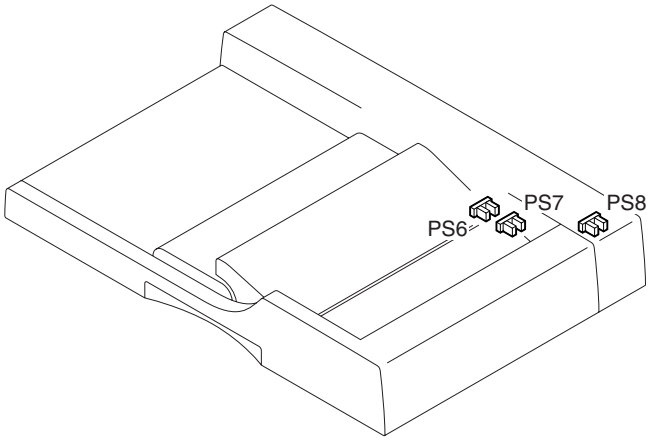
0006-3496



F-13-7

13.2.2.2 ADF

0006-3497



F-13-8

T-13-2

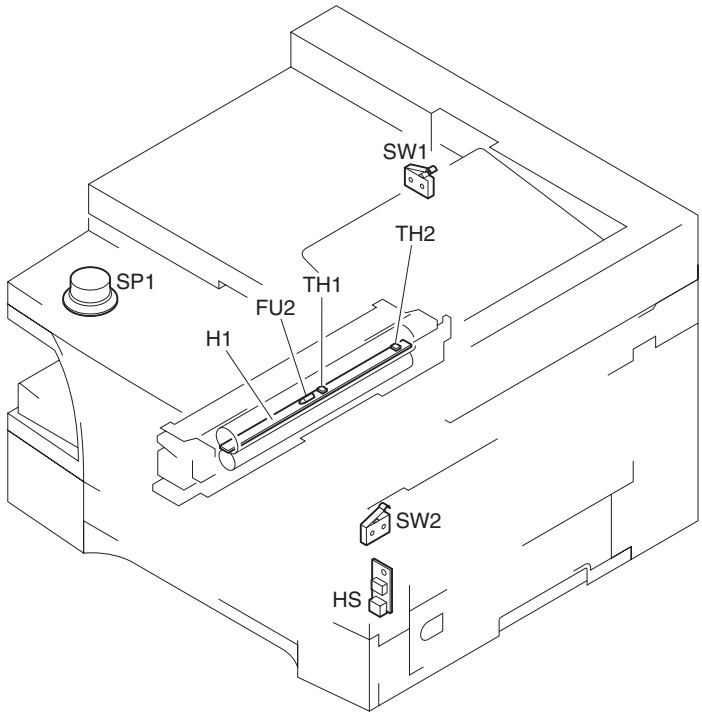
Sensors

Symbol	Name	Notation	Description
	Photointerrupters	PS1	constant sensor home position detection
		PS2	ADF (copyboard cover) open/close detection
		PS3	delivery detection
		PS4	manual feed tray paper detection
		PS6	original detection (if equipped with ADF functions)
		PS7	ADF registration paper detection (if equipped with ADF functions)
		PS8	original delivery detection (if equipped with ADF functions)
		PS10	waste toner casing full detection
		PS11	toner bottle set detection
		PS101	LGL paper detection
		PS102	paper leading edge detection
		PS103	cassette paper detection

13.2.3 Lamps, Heaters, and Others

13.2.3.1 Others

0006-3499



F-13-9

T-13-3

Others

Symbol	Name	Notation	Description
	Switch	SW1	reader unit slide detecting
		SW2	toner supply cover open/close detecting
	Humidity sensor	HS	humidity check
	Heater	H1	fixing heater
	Thermistor	TH1	fixing main thermistor (fixing assembly center temperature detection)
		TH2	fixing sub thermistor (fixing assembly end temperature detection)
	Thermal fuse	FU2	Fixing heater error temperature detection

Others

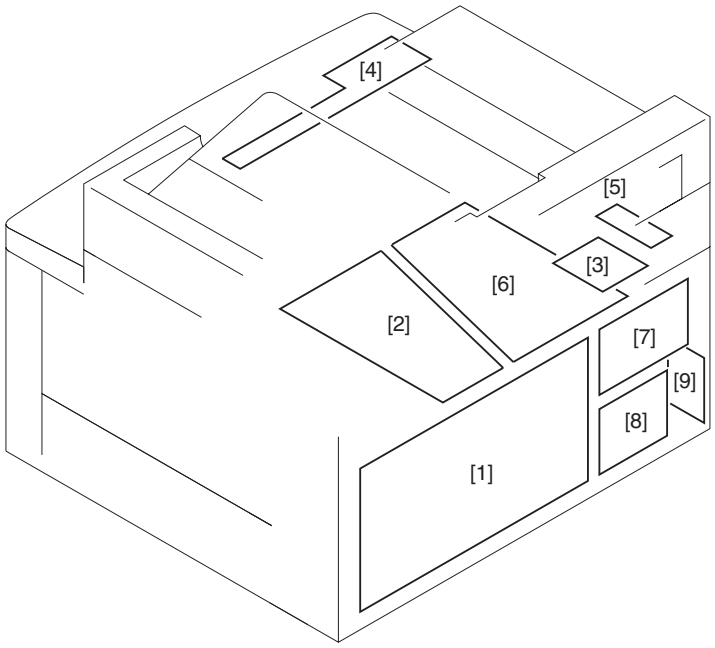
Symbol	Name	Notation	Description
	Speaker	SP1	speaker*1

*1: If equipped with fax functions.

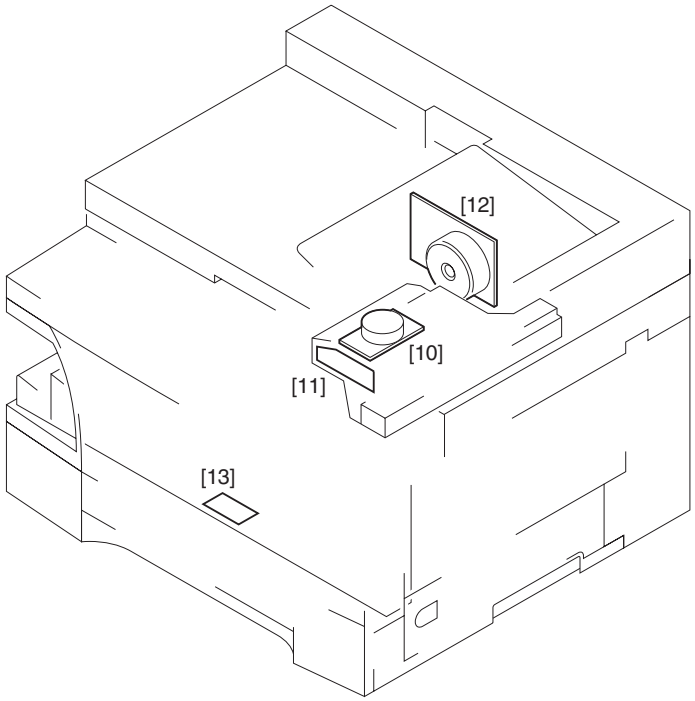
13.2.4 PCBs

13.2.4.1 PCBs

0006-3507



F-13-10



F-13-11

T-13-4

PCBs

Ref.	Name	Description
1	Image processor PCB	image processing control
2	DC controller PCB	DC load control
3	Analog processor PCB	contact sensor drive, analog image processing
4	Control panel PCB	control panel control
5	Sensor PCB	ADF (copyboard cover) open/close detection, contact sensor home position detection
6	Power supply PCB	low-voltage power supply control
7	Printer controller PCB	computer combination control
8	NCU PCB*1	fax communication control
9	Modular jack PCB*1	telephone line connection
10	Laser scanner motor driver	laser scanner motor drive
11	Laser driver BD PCB	laser drive, laser beam detection
12	Main motor driver	main motor drive
13	Sensor relay PCB	Relay between the humidity sensor/the toner bottle sensor and the DC controller PCB

PCBs

Ref.	Name	Description

*1: If equipped with ADF functions.

13.2.5 Variable Resistors(VR), Light-Emitting Diodes(LED),and Check Pins by PCB

13.2.5.1 Variable Resistors, Light Emitting Diodes (LED), and Check Pins by PCB 0006-3509

Of the VRs, LEDs, and check pins used in the machine, those needed when servicing in the field are discussed:

⚠

1. Some LEDs emit dim light even when OFF; this is a normal condition, and must be kept in mind.
2. VRs that may be used in the field: ⊘

   VRs that must not be used in the field: ⊘

⚠

Do not touch the VRs and check pins not found in the lists herein; they are exclusively for the factory, and require special tools and high accuracy.

Chapter 14 Self Diagnosis

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14.1 Error Code Table

14.1.1 Troubleshooting Malfunctions (service error) 0006-3271

T-14-1

E000

The error history indicates any of the following error codes 4 times: E001, E002, E003.

Action 1) Clear the error.

Execute '#4 PRINTER RESET" under '#7 PRINTER' in service mode to clear the error.; then, turn back on the power.

T-14-2

E001

000 The main thermistor detects 230 deg C/446 deg F or higher for 1 sec or more.

001 The sub thermistor detects 300 deg C/572 deg F or higher for 0.2 sec or more.

Main cause The fixing film unit is faulty (thermistor short circuit). The power supply PCB is faulty. The DC controller PCB is faulty.

Action 1. Malfunction

Turn off the power; wait for 10 min, and turn it on. Is the problem cor-rected?

YES: End.

2. Fixing film unit

Check the connector (4-pin) of the thermistor for electrical continuity: 1-2 and 3-4. Is it 0 ohm?

YES: Replace the fixing film unit.

3. Power supply PCB, DC controller PCB

Try replacing the power supply PCB. Is the problem corrected?

NO: Replace the DC controller PCB.

T-14-3

E002

000	During printing, the main thermistor detects 0 deg C/32 deg F or lower for 1 sec or more continuously. About 10 sec or later after power-on/start of printing, the main thermistor detects less than 120 deg C/248 deg F for 1 sec or more con-tinuously. After power-on/start of printing, the reading of the main thermistor does not reach the target value -15 deg C/11 deg F or higher within 75 sec.
001	About 10 sec or later after the heater is supplied with power, the sub thermistor detects less than 75 deg C/ 167°F for 2 sec or more con-tinuously.

Main cause The fixing film unit is faulty (main thermistor fault, sub thermistor fault, thermal fuse blow, fixing heater fault). The power supply PCB is faulty. The DC controller PCB is faulty.

Action See the descriptions for E003.

T-14-4

E003

During printing, the main thermistor detects less than 120 deg C/248 deg F for 1 sec or more continuously.

Main cause	The fixing film unit is faulty (main thermistor fault, thermal fuse blow, fixing heater fault). The power supply PCB is faulty. The DC controller PCB is faulty.
Action	1. Malfunction Turn off the power; wait for 10 min, and turn on the power. Is the problem corrected? YES: End. 2. Wiring Is the wiring from the DC controller PCB to the fixing film unit normal? NO: Correct the wiring. 3. Fixing film unit Try replacing the fixing film unit. Is the problem corrected? YES: End. 4. Power supply PCB, DC controller PCB Try replacing the power supply PCB. Is the problem corrected? YES: End. NO: Replace the DC controller PCB.

T-14-5

E100

About 1.5 sec after the scanner drive signal output, the BDI* signal is not detected 3 times or more for 1.0 sec.
While the laser is ON, the BD signal cycle is not as indicated for 0.5 or more continuously.

Main cause: The laser driver/BD PCB is faulty (laser activation failure, BD detection fault). The DC controller PCB is faulty. The image processor PCB is faulty.

Action	1. Wiring Is the wiring from the DC controller PCB to the laser scanner unit normal? NO: Correct the wiring 2. Laser scanner unit Try replacing the laser scanner unit. Is the problem corrected? YES: End. 3. DC controller PCB, Image processor PCB Try replacing the DC controller PCB. Is the problem corrected? YES: End. NO: Replace the image processor PCB.

T-14-6

E110

	The scanner fails to reach the target speed of rotation 10 sec after the laser scanner motor reaches constant speed state.
Main cause	The laser scanner motor is faulty. The DC controller PCB is faulty.
Action	1. Laser scanner unit, DC controller PCB Try replacing the laser scanner unit. Is the problem corrected? YES: End. NO: Replace the DC controller PCB.

T-14-7

E805

	While the fan is rotating, fan lock state is detected for 10 sec or more con-tinuously.
Main cause	The fan is faulty. The DC controller PCB is faulty. The image processor PCB is faulty.

Action
1. Foreign matter
Is there any foreign matter that hinders the rotation of the heat discharge fan?
YES: Remove the foreign matter.
2. Wiring, Connection
Are the wiring and connection (connectors) of the fan normal?
NO: Correct them.
3. Fan
Try replacing the fan. Is the problem corrected?
YES: End.
4. DC controller PCB/Image processors PCB
Try replacing the DC controller PCB. Is the problem corrected?
YES: End.
NO: Replace the image processor PCB.

T-14-8

E810

The case that the toner bottle is detected, but not the cartridge.

Main cause
The DC controller PCB is faulty. The cartridge is faulty.

Action
1. High-voltage contact (between machine and the developing unit) Is the high-voltage spring used to supply high voltage to the developing unit soild?
YES: Clean it.
2. High-voltage contact (between high-voltage spring and DC controller PCB; J207) Is the connection between the high-voltage spring and the DC controller PCB(J207) normal?
NO: Correct the connection.. If the problem cannot be corrected, re-place the faulty part.
3. Developing unit, DC controller PCB
Replace the developing unit. Is the problem corrected?
YES: End.
NO: Replace the DC controller PCB.

14.2 FAX Error Codes

14.2.1 Outline

14.2.1.1 Outline 0006-3503

If '1' is set to service data #1 SSSW SW01 bit 0, an appropriate service error code will be indicated on the following reports if a communication ends in error: communication control report, reception result report, error transmission report.
When an error occurs, you can generate a system dump list in service mode to check the code.

14.2.1.2 Error Codes 0006-3504

The error codes used in the machine are defined as follows:

1Transmission Level (ATT): No.07 of Service Soft Switch #2 MENU

- Increase the transmission level:

Increase the setting so that it is closer to 0 dBm. (At 0 dBm, the LCD indicates '0'.)

- Decrease the transmission level:

Decrease the setting so that it is closer to -15 dBm. (At -15 dBm, the LCD indicates '15'.)

NL Equalizer: No.05 of Service Soft Switch #2 MENU

- Adjust the NL equalizer:

Select 'ON'.

Transmission Page Timer: SW12 of Service Soft Switch #1 SSSW

- Increase the page timer setting:

To set both transmission and reception to the same time-out length, set SW12 as fol-lows:

8 min: bit 7, bit 1, bit 0 = 0, 0, 0
16 min: bit 7, bit 1, bit 0 = 0, 0, 1
32 min: bit 7, bit 1, bit 0 = 0, 1, 0
64 min: bit 7, bit 1, bit 0 = 0, 1, 1

If you want to set transmission and reception to different time-out lengths, or use differ-ent time-out lengths according to different image modes, you will have to set all bits (from 7 through 0) accordingly.

Timer: No.10 of Service Soft Switch #3 NUMERIC param.

- Increase the T0 timer setting:

Increase the setting of No.10.

The T0 timer is used to set the period of time in which a line connection is recognized for transmission, i.e., in which the machine waits for a significant signal from the other party after dialing. The line will be disconnected if no significant signal is received during the period.

Timer: No.11 of Service Soft Switch #3 NUMERIC param.

- Increase the T1 timer setting:

Increase the setting of No.11.

The T1 timer is used to set the period of time in which a line connection is recognized for reception, i.e., in which

the machine waits for a significant signal from the other party after transmission of DIS. The line will be disconnected if no significant signal is received during the period.

RTN Signal Transmission Condition: No. 02, 03, and 04 of Service Soft Switch #3 NUMERIC param.

- Loosen the RTN signal transmission condition:

Increase the settings of No.02, 03, and 04.

No.02 is used to set the ratio of the number of error lines to the total number of lines per page (1% to 99%).

No.03 is used to set the burst error (number of successive error lines identified as an er-rors) ; (2 to 99 lines).

No.04 is used to set the number of errors falling short of a burst error (1 to 99 times).

Echo Remedy

- An echo remedy may be provided on the reception side as follows:

Echo Remedy 1 (by the receiving machine; adds a 1080-Hz tonal signal before transmission of CED):

Set SW03 bit 7 of service soft switch #1 SSSW to '1' so that a 1080-Hz tonal signal is transmitted before transmission of CED.

Echo Remedy 2 (by the receiving machine; changes the period in which the low speed signal is ignored after transmission of CFR):

Set SW04 bit 4 of service soft switch #1 SSSW to '1' so that the period in which the low speed signal is ignored after transmission of CFR is changed from 700 to 1500 msec.

Echo Protect Tone: SW03 bit 1 of Service Soft Switch #1 SSSW

- Add an echo protect tone to the V.29 modem signal for transmission:

When SW03 bit 1 is set to '1', an echo protect tone will be added to high-speed trans-mission V.29 (at 9600 or 7200 bps) for transmission.

9Number of Final Flag Sequences: SW04 bit 2 of Service Soft Switch #1 SSSW

- Increase the number of final flag sequences:

When SW04 bit 2 is set to '1', the number of final flag sequences will be increased from 1 to 2 for a procedure signal (transmitted at 300 bps).

Subaddress

A subaddress is used to indicate the location of a memory box in the other party (e.g., confidential mailbox, polling box), and it consists of 20 or fewer characters (numerals, *, #, space). As log as the other party complies with the International Standards of ITU-T, the machine can communicate with it by means of subaddresses.

At times, an ID number (referred to as a "password") is used to restrict access to a loca-tion indicated by a subaddress. With some models, polling based on subaddresses is called "selective polling", and a subaddress used at time of polling is called a "selective polling address".

Password

A password used by a Canon facsimile machine may be any of the following: Password for Subaddress Communications: This is an ID number used for a subaddress communication and, as in the case of a subaddress, it consists of 20 or fewer characters (numerals, *, #, space).

Communication Password:

This is an ID number used for a password communication. Some models use 4 decimal characters (0000 through 9999), while some use 3 decimal characters (000 through 255).

MEMO:

Password Used When Making Settings:
A password may also be used for memory lock Rx, call restriction, and Memo other functions. Such a password consists of 4 decimal characters (0000 through 9999), and it is important to remember that these passwords are used inside the machine and are not intended for communication proce-dures.

Signals

Tonal Signal:
A tonal signal consists of sinusoidal waves of a specific frequency, and may be thought of as a sound carrying a meaning. CNG, CED, and ANSam are tonal signals.

Binary Signal:
A binary signal is used to indicate the meaning of a procedure. It is either '1' or '0', modulated according to frequency, and is used as G3 procedure signals.

Procedure Signal:
It is a generic term for a tonal signal and a binary signal.

Preamble:
It is a signal attached to the beginning of a binary signal, and is used to synchronize mo-dem signals for a procedure signal.

Image Signal:
Of procedure signals, it is used for actual transmission of image data.

Significant Signal:
It is a signal whose significance can be understood by a facsimile machine that receives it, and it is free of a transmission error.

Timer

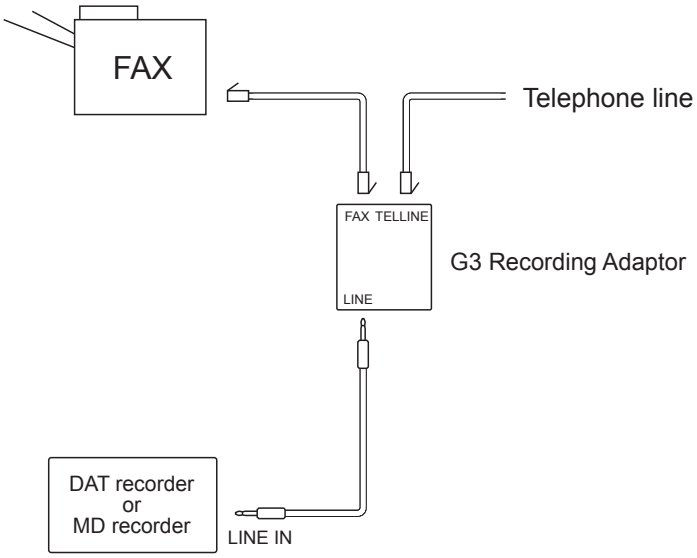
T0 Timer:
It indicates the period of time in which a line connection is recognized during transmis-sion; specifically, the machine waits for a significant signal from the other party after dial-ing.

T1 Timer:
It indicates the period of time in which a line connection is recognized during reception; specifically, the machine waits for a significant signal from the together party after trans-mission of DIS.

T5 Timer:
It is the period of time in which RR/RNR is transmitted during an ECM communication.

14.2.1.3 How to Record the Protocol 0006-3530

If you are instructed to "record the communication procedure sound on a DAT or MD, and ask the Technical Center for analysis", refer to the following diagram for a generally used method of connection:



Use Standard (SP) mode for recording.
Set the recording level so that the sound of communication can clearly be heard with as little noise as possible when replayed.

F-14-1

14.2.2 User Error Code

14.2.2.1 Causes and Remedies for User Error Codes

0006-3508

T-14-9

#001 [TX]	**Document has jammed**
Cause:	The original is trapped in the feeder
Remedy:	Remove the document, and try again.
Cause:	The original is not of a standard size or thickness.
Remedy:	1. Make a copy on A4/LTR paper in book mode, and transmit the output.
	2. If the original is too thin or too small, transmit it in book mode.
Cause:	Internal Fault
Remedy:	1. Check the connection of the DS sensor (original sensor), DES sensor (registration sensor), and image processor PCB.
	2. Check the following to see if they operate normally: DS sensor (original sensor), DES senor (registration sensor).
	3. Replace the DS sensor (original sensor) and the DES sensor (registration sensor).

#001 [TX]	Document has jammed
	4. Check the connection between the ADF motor and the image processor PCB.
	5. Make copies to find out if the ADF motor is operating normally.
	6. Replace the image processor PCB.

T-14-10

#003 [TX/RX]	Document is too long, or page time-over
Cause:	The length of a single page is too long.
Remedy:	Make copies in book mode, and transmit the original in several divisions.
Cause:	The data of a single page is too large, exceeding the time allowed for transmission.
Remedy:	1. Decrease the reading resolution when transmitting.
	2. If the original is too long and, thus, results in a large amount of data, make copies in book mode, and transmit the original in several divisions.
	3. If halftone transmission is used, the original is of a default size, and the data is too large, increase the setting of the page timer.
Cause:	The data of a single page is too large, exceeding the time allowed for reception.
Remedy:	1. Ask the operator of the other party to decrease the reading resolution and transmit.
	2. Ask the operator of the other party to divide the original and transmit.
	3. Increase the setting of the page timer.
	4. Ask the operator of the other party to find out the cause.
Cause:	An internal mechanism is faulty.
Remedy:	1. Check the connection of the DES sensor (registration sensor) and image processor PCB.
	2. Check the following to see if they operate normally: DES senor (registration sensor).
	3. Replace the DES sensor (registration sensor).
	4. Check the connection between the ADF motor and the image processor PCB.

#003 [TX/RX]	Document is too long, or page time-over
	5. Make copies to find out if the ADF motor is operating normally.
	6. Replace the image processor PCB.

T-14-11

#005 [TX/RX]	Initial identification (T0/T1) time-over
Cause:	The tone/pulse setting is wrong.
Remedy:	Make the correct tone/pulse setting.
Cause:	The time it takes to connect to the other party's line is too long.
Remedy:	1. When registering an auto-dial number, put a relatively long pause after the telephone number to delay the T0 timer start mechanism.
	2. In service mode, increase the T0 timer length using '10' of #3 Numeric param. so that a time-cover condition will not occur. (for transmission)
	3. In service mode, increase the T1 timer length using '11' of #3 Numeric param. so that a time-over condition will not occur. (for reception)
Cause:	The other party does not respond.
Remedy:	Contact the operator of the other party, and find out the cause.
Cause:	The other party's communication mode (G2, G3, etc.) does not match.
Remedy:	The communication mode depends on each specific model, and no remedy can be offered.
Cause:	During transmission, the other party malfunctioned because of an echo.
Remedy:	1. Using a manual call, press the Start button after hearing the 1st DIS from the other party.
	2. To prevent response to the 1st DIS from the other party, put a relatively long pause to the telephone number when registering an auto-dial number.
	3. Ask the operator of the other party to provide echo remedy 1.
	4. Ask the operator of the other party to decrease the transmission level.
Cause:	During reception, the machine malfunctioned because of an echo.

#005 [TX/RX]	Initial identification (T0/T1) time-over
Remedy:	Provide echo remedy 1.

T-14-12

#009 [RX]	Paper has jammed or the paper has run out
Cause:	The paper has run out.
Remedy:	Set new paper.
Cause:	A paper jam has occurred.
Remedy:	Remove the paper jam.

T-14-13

#011 [RX]	Polling reception error
Cause:	There is no original in the other party.
Remedy:	Ask the operator of the other party to set the original correctly.
Cause:	Transmission was attempted, and polling reception was started because the document was not set correctly.
Remedy:	Set the original correctly to transmit.

T-14-14

#012 [TX]	The other party has run out of paper
Cause:	The other party has run out of paper.
Remedy:	Ask the operator of the other party to set paper.

T-14-15

#018 [TX]	Auto dialing transmission error
Cause:	The tone/pulse setting is wrong.
Remedy:	Make the correct tone/pulse setting.
Cause:	The connection time for the line is too long.
Remedy:	1. When registering an auto-dial number, put a relatively long pause at the end of the telephone number to delay the start of the T0 timer.
	2. Increase the T0 timer setting to prevent a time-over condition.
Cause:	The line of the other party was engaged.

#018 [TX]	Auto dialing transmission error
Remedy:	Start a call once again.
Cause:	The other party is not connected to the line, or is not turned on so that the transmission did not arrive.
Remedy:	Ask the operator of the other party to find out the cause.
Cause:	The other party is not a facsimile machine.
Remedy:	Check the number of the other party, and start a call once again.
Cause:	The other party ran out of paper so that the line was disconnected during the preprocedure.
Remedy:	Ask the operator of the other machine to set paper.
Cause:	The machine was disconnected from the line using an unidentified reason code.
Remedy:	1. Wait for a while, and start a call once again. 2. Check to make sure that the other party is tuned on.
Cause:	1. The other party did not respond. 2. The other party is out of order. 3. The other party is out of use for some reason. 4. The exchange is congested. 5. There is no line/channel that is available at present. 6. The requested line/channel cannot be used on the side of the other party. 7. Calls crashed. 8. Communication is not possible at present by reason of terminal management.
Remedy:	Ask the operator of the other party to find out the cause.

T-14-16

#021 [RX]	The other party has rejected the machine during polling reception
Cause:	When starting a call, a subaddress, or a subaddress and a password, was not specified.
Remedy:	Specify a subaddress, or a subaddress and a password, when starting a call.

T-14-17

#022 [TX]	Call fails
Cause:	The data for an auto-dial number used when selecting a party was deleted.
Remedy:	Register the telephone number of the other party as an auto-dial number, and transmit once again.

T-14-18

#025 [TX/RX]	Auto-dial setting is wrong
Cause:	The settings require registration of a subaddress for auto-dialing; however, a call was attempted without registering a subaddress.
Remedy:	If auto-dialing is of a type requiring registration of a subaddress, register a subaddress.

T-14-19

#037 [RX]	Memory has overflowed when receiving images
Cause:	The image memory overflowed during reception.
Remedy:	Delete image data that is no longer needed, and ask the operator of the other party to transmit once again.

T-14-20

#059 [TX]	Dialed number and the connected number (CSI) do not match
Cause:	The user telephone number is not registered correctly on the receiving side.
Remedy:	1. Ask the operator of the receiving side to register the user telephone number correctly. 2. Use manual transmission; then, after making sure that a connection has been made, transmit once again.
Cause:	The exchange malfunctioned, and the machine is not connected to the dialed party.
Remedy:	Have the exchange checked.

T-14-21

#080 [TX]	The other party is not equipped with an ITU-T-compliant subaddress reception function
Cause:	Bit 49 of DIS received from the other party is '0'.
Remedy:	1. Transmit to a fax machine equipped with a subaddress function. 2. Use normal G3 transmission.

T-14-22

#081 [TX]	The other party is not equipped with an ITU-T-compliant password reception function
Cause:	Bit 50 of DIS received from the other party is '0'.
Remedy:	1. Transmit to a fax machine equipped with a password function. 2. Use subaddress transmission that does not use a password. 3. Use normal G3 transmission.

T-14-23

#082 [RX]	The other party is not equipped with an ITU-T-compliant selective polling transmission function
Cause:	Bit 47 of DIS received from the other party is '0'.
Remedy:	Ask the operator to set normal polling transmission, and use polling reception.

T-14-24

#083 [RX]	Selective polling address or the password does not match during ITU-T-compliant selective polling reception
Cause:	The selective polling address or the password of the machine does not match that of the other machine.
Remedy:	Match the selective polling address and the password of the machine with that of the other party.

T-14-25

#084 [RX]	The other party is not equipped with a password function for ITU-Tcompliant selective polling reception
Cause:	Bit 50 of DIS received from the other party is '0'. Cause:
Remedy:	Use selective polling that does not use a password.

T-14-26

#995 [TX/RX]	Memory transmission reservation clear/memory reception image clear
Cause:	In the case of transmission, the user canceled the memory transmission reservation.
Remedy:	Transmit once again.
Cause:	In the case of reception, the user deleted the image that had been received in memory reception.
Remedy:	Ask the operator of the other party to transmit once again.

14.2.3 Service Error Code

14.2.3.1 Causes and Remedies for Service Error Codes 0006-3533

The causes and remedies for service error codes are as follows:

T-14-27

##100 [TX]	The number allowed for retransmission of the procedure signal was exceeded during transmission
Cause:	The transmission level is too low, and the other party cannot receive NSS, TSI, DCS, TCF, or the training signal correctly.
Remedy:	Increase the transmission level so that the other party may receive the signal correctly.
Cause:	After transmission of TCF immediately before the image signal, the other party malfunctioned because of an echo.
Remedy:	1. Ask the operator of the other party to provide echo remedy 2 2. Using a manual call, press the Start button after hearing the 1st DIS from the other party. 3. To prevent response to the 1st DIS from the other party, put a relatively long pause to the telephone number when registering an auto dialing number.

##100 [TX]	**The number allowed for retransmission of the procedure signal was exceeded during transmission**
Cause:	After transmission of the Q signal following the image signal, the line condition became poor so that the other party cannot receive the image signal or the Q signal correctly.
Remedy:	1. Increase the transmission level so that the other party may service the image signal or the Q signal correctly. 2. Decrease the transmission start speed. 3. Adjust the NL equalizer so that the other party may receive the image signal or the Q signal correctly. 4. Add an echo protect tone to the V.29 modem signal for transmission. 5. Increase the number of final flag sequences for the procedure signal so that the other party may receive the procedure signal correctly.

T-14-28

##101 [TX/RX]	**The modem speed of the machine does not match that of the other party**
Cause:	The modem speed of the machine does not match that of the other machine.
Remedy:	The modem speed is part of machine specifications, and there is no remedy.
Cause:	In the case of transmission, the speed for fallback does not match that of the other party.
Remedy:	1. Increase the transmission level so that the other party may receive TCF correctly. 2. Adjust the NL equalizer so that the other party may receive TCF correctly. 3. Provide echo remedy 1. 4. Using a manual call, press the Start button after hearing the 1st DIS from the other party. 5. To prevent response to the 1st DIS from the other party, put a relatively long pause to the telephone number when registering an auto-dialing number. 6. Ask the operator of the other party to decrease the transmission level so that the other party will not receive an echo.

T-14-29

##102 [TX]	**Fallback is not possible**
Cause:	The line condition is poor, and the other party cannot receive TCF correctly.
Remedy:	1. Increase the transmission level so that the other party may receive TCF correctly. 2. Adjust the NL equalizer so that the other party may receive TCF correctly.
Cause:	An echo has caused a malfunction.
Remedy:	1. Using a manual call, press the Start button after hearing the 1st DIS from the other party. 2. To prevent response to the 1st DIS from the other party, put a relatively long pause to the telephone number when registering an auto-dialing number. 3. Ask the operator of the other party to provide echo remedy 1. 4. Ask the operator of the other party to decrease the transmission level so that the other party will not receive an echo.

T-14-30

##103 [RX]	**EOL cannot be detected for 5 sec (15 sec if CBT)**
Cause:	The line condition is poor, and the image signal cannot be received correctly.
Remedy:	1. Ask the operator of the other party to increase the transmission level so that the image signal may be received correctly. 2. Ask the operator of the other party to decrease the transmission start speed. 3. Adjust the NL equalizer so that the image signal may be received correctly.
Cause:	The machine malfunctioned because of an echo of CFR.
Remedy:	1. Provide echo remedy 2. 2. Decrease the transmission level so that an echo of transmitted CFR will not be received.

T-14-31

##104 [TX]	**RTN or PIN has been received**
Cause:	The line condition is poor so that the other party cannot receive the image signal correctly.

##104 [TX]	RTN or PIN has been received
Remedy:	1. Increase the transmission level so that the other party may receive the image signal correctly. 2. Decrease the transmission start speed. 3. Adjust the NL equalizer so that the other party may receive the image signal correctly. 4. Add an echo protect tone to the V.29 modem signal for transmission. 5. Ask the operator of the other party to loosen the RTN transmission conditions so that the other party will not transmit RTN.
Cause:	The machine malfunctioned because of an echo.
Remedy:	1. Using a manual call, press the Start button after hearing the 1st DIS from the other party. 2. To prevent response to the 1st DIS from the other party, put a relatively long pause to the telephone number when registering an auto-dialing number. 3. Ask the operator of the other party to provide echo remedy 1. 4. Ask the operator of the other party to decrease the transmission level so that the other party will not receive an echo.

T-14-32

##106 [RX]	The procedure signal cannot be received for 6 sec while in wait
Cause:	The line condition is poor, and the procedure signal from the other party cannot be received correctly.
Remedy:	1. Ask the operator of the other party to increase the transmission level so that the procedure signal may be received correctly. 2. Adjust the NL equalizer so that the procedure signal may be received correctly.
Cause:	The line condition is poor, and the other party cannot receive the signal.

##106 [RX]	**The procedure signal cannot be received for 6 sec while in wait**
Remedy:	1. Increase the transmission level so that the other party may receive the signal correctly. 2. Adjust the NL equalizer so that the other party may receive the signal correctly.
Cause:	The machine malfunctioned because of an echo.
Remedy:	1. Provide echo remedy 1. 2. Decrease the transmission level so that an echo of transmitted signal will not be received.

T-14-33

##107 [RX]	**The transmitting machine cannot use fall-back**
Cause:	The line condition is poor, and the signal from the other party cannot be received correctly even at 2400 bps.
Remedy:	1. Ask the operator of the other party to increase the transmission level so that the signal may be received correctly. 2. Adjust the NL equalizer so that the signal may be received correctly. 3. Loosen the RTN transmission conditions so that RTN will not be transmitted.
Cause:	The machine malfunctioned because of an echo.
Remedy:	1. Provide echo remedy 1. 2. Decrease the transmission level so that an echo of the transmitted signal will not be received.

T-14-34

##109 [TX]	**After transmitting DCS, a signal other than DIS, DTC, FTT, CFR, and CRP was received, exceeding the permitted number of transmissions of the procedure signal**
Cause:	The procedure signal is faulty.
Remedy:	Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-35

##111 [TX/RX]	**Memory error**
Cause:	While printing data stored in the image memory, the effects of noise caused a data error.
Remedy:	Print out all image data and system data, and execute all-clear; then, store the system data once again.
Cause:	Noise started wrong dialing.
Remedy:	Replace the image processor PCB.

T-14-36

##114 [RX]	**RTN was transmitted**
Cause:	The line condition is poor, and the image signal from the other party cannot be received correctly.
Remedy:	1. Ask the operator of the other party to increase the transmission level so that the image signal may be received correctly. 2. Ask the operator of the other party to decrease the transmission start speed. 3. Adjust the NL equalizer so that the image signal may be received correctly. 4. Loosen the RTN transmission conditions so that RTN will not be transmitted.
Cause:	The machine malfunctioned because of an echo of CFR.
Remedy:	1. Provide echo remedy 2. 2. Decrease the transmission level so that an echo of transmitted CFR will not be received.

T-14-37

##200 [RX]	**During image reception, a carrier is not detected for 5 sec**
Cause:	The line condition is poor, and the image signal cannot be received.
Remedy:	1. Ask the operator of the other party to increase the transmission level so that the image signal may be received correctly. 2. Ask the operator of the other party to decrease the transmission start speed.
Cause:	The training signal cannot be received because of an echo of CFR, causing a timeover condition.

##200 [RX]	**During image reception, a carrier is not detected for 5 sec**
Remedy:	1. Provide echo remedy 2. 2. Decrease the transmission level so that an echo of transmitted CFR will not be received.

T-14-38

##201[TX/RX]	**DCN was received through a non-normal procedure**
Cause:	The other party is not ready for reception (e.g., out of paper).
Remedy:	Ask the operator of the other party to set the machine for reception (as by setting paper).
Cause:	The user telephone number has not been registered (if the receiving machine is a RICOH 3000L).
Remedy:	Register the user telephone number.
Cause:	In polling transmission, document is not placed.
Remedy:	Place a document, and ask the operator of the other party to make a call once again.
Cause:	The other party transmitted, but there is no paper.
Remedy:	Set paper.
Cause:	The line condition is poor, and the other party cannot receive the procedure signal correctly.
Remedy:	1. Increase the transmission level so that the other party may receive the procedure signal correctly. 2. Adjust the NL equalizer so that the other party may receive the procedure signal correctly.
Cause:	The machine malfunctioned because of an echo.
Remedy:	1. Provide echo remedies 1 or 2. 2. Decrease the transmission level so that an echo will not be received.
Cause:	The image signal or the Q signal cannot be received, and the other party suffered an excess number of re-transmissions of the procedure signal.

##201[TX/RX]	DCN was received through a non-normal procedure
Remedy:	1. Ask the operator of the other party to increase the transmission level so that the signal may be received correctly. 2. Adjust the NL equalizer so that the signal may be received correctly. 3. Ask the operator of the other party to decrease the transmission start speed.
Cause:	The line condition is poor, and the other party (transmitting machine) cannot use fall-back.
Remedy:	1. Ask the operator of the other party to increase the transmission level so that the signal may be received correctly. 2. Adjust the NL equalizer so that the signal may be received correctly. 3. Loosen the RTN transmission conditions so that RTN will not be transmitted.

T-14-39

##220 [TX/RX]	System error (e.g., main program may have gone away)
Cause:	Noise caused the CPU to malfunction.
Remedy:	Turn off and then on the power.

T-14-40

##223 [TX]	The line was disconnected during communication
Cause:	The Stop button was pressed during image transmission.
Remedy:	Transmit once again.

T-14-41

##224 [TX/RX]	Fault occurred in the communication procedure signal
Cause:	The original on the transmitting party is not correctly fed, forcing polling mode to start (i.e., DCN was received in response to DIS).
Remedy:	1. Check to make user that the original is placed correctly. 2. If the feeding roller is worn, replace it.

##224 [TX/RX]	Fault occurred in the communication procedure signal
Cause:	In a memory full condition, a call arrived when a original was set (i.e., DCN was received in response to DIS).
Remedy:	If any image received in memory reception remains in the memory, print out the image and empty the memory. Also, avoid leaving a original in the copyboad glass unless the machine is in transmission mode.
Cause:	The procedure signal is faulty.
Remedy:	Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-42

##229 [RX]	The recording system became locked for 1 min
Cause:	Not identified.
Remedy:	Correct the locking, and press the Start button to print out the image.

T-14-43

##232 [TX]	The unit used to control the encoder is faulty
Cause:	The operation of the IC used to control the encoder did not end normally.
Remedy:	Replace the image processor PCB.

T-14-44

##237 [RX]	The IC used to control the decoder malfunctioned
Cause:	The operation of the IC used to control the decoder did not end normally.
Remedy:	Replace the image processor PCB.

T-14-45

##238 [RX]	The unit used to control recording malfunctioned
Cause:	The operation of the IC used to control recording did not end normally.
Remedy:	Replace the DC controller PCB.

T-14-46

##261 [TX/RX]	**System error occurred between the modem and system control board**
Cause:	An internal unit is faulty (when RS is set to '1', CS fails to go '1').
Remedy:	Replace the image processor PCB. (faulty modem)

T-14-47

##280 [TX]	**The number of re-transmissions of the procedure signal has been exceeded**
Cause:	The line condition is poor, and the appropriate signal from the other party cannot be received correctly after transmission of TCF.
Remedy:	1. Increase the transmission level so that the other party may receive TCF correctly. 2. Ask the other party to increase the transmission level so that the appropriate signal may be received correctly.
Cause:	The other party malfunctioned because of an echo.
Remedy:	1. Using a manual call, press the Start button after hearing the 1st DIS from the other party. 2. To prevent response to the 1st DIS from the other party, put a relatively long pause to the telephone number when registering an auto-dialing number. 3. Ask the operator of the other party to provide echo remedy 1. 4. Ask the operator of the other party to decrease the transmission level so that the other party will not receive an echo.
Cause:	The telephone line has a faulty connection.
Remedy:	Check to see that the telephone line is connected correctly.
Cause:	During a communication, the telephone line was disconnected.
Remedy:	Avoid disconnecting the telephone line while a communication is under way.

T-14-48

##281 [TX]	**The number of re-transmissions of the procedure signal has been exceeded**
Cause:	The line condition is poor, and the appropriate signal from the other party cannot be received correctly after transmission of EOP.

##281 [TX]	**The number of re-transmissions of the procedure signal has been exceeded**
Remedy:	1. Increase the transmission level so that the other party may receive EOP correctly. 2. Decrease the transmission start speed. 3. Adjust the NL equalizer so that the other party may receive EOP correctly. 4. Add an echo protect tone to the V.29 modem signal for transmission. 5. Ask the operator of the other party to increase the transmission level so that the appropriate signal may be received correctly.

T-14-49

##282 [TX]	**The number of re-transmissions of the procedure signal has been exceeded**
Cause:	The line condition is poor, and the appropriate signal from the other party cannot be received correctly after transmission of EOM.
Remedy:	1. Increase the transmission level so that the other party may receive EOM correctly. 2. Decrease the transmission start speed. 3. Adjust the NL equalizer so that the other party may receive EOM correctly. 4. Add an echo protect tone to the V.29 modem signal for transmission. 5. Ask the operator of the other party to increase the transmission level so that the appropriate signal may be received correctly.

T-14-50

##283 [TX]	**The number of re-transmissions of the procedure signal has been exceeded**
Cause:	The line condition is poor, and the appropriate signal from the other party cannot be received correctly after transmission of MPS.

##283 [TX]	**The number of re-transmissions of the procedure signal has been exceeded**
Remedy:	1. Increase the transmission level so that the other party may receive MPS correctly. 2. Decrease the transmission start speed. 3. Adjust the NL equalizer so that the other party may receive MPS correctly. 4. Add an echo protect tone to the V.29 modem signal for transmission. 5. Ask the operator of the other party to increase the transmission level so that the appropriate signal may be received correctly.

T-14-51

##284 [TX]	**DCN has been received after transmission of TCF**
Cause:	The other party is not ready for reception (e.g., out of paper).
Remedy:	Ask the operator of the other party to set the machine for reception (as by setting paper).
Cause:	The user telephone number has not been registered (if the receiving machine is a RICOH 3000L).
Remedy:	Register the user telephone number.
Cause:	The other party cannot receive TCF correctly.
Remedy:	Increase the transmission level so that the other party may receive TCF correctly.
Cause:	The other party malfunctioned because of an echo.
Remedy:	1. Using a manual call, press the Start button after hearing the 1st DIS from the other party. 2. To prevent response to the 1st DIS from the other party, put a relatively long pause to the telephone number when registering an auto-dialing number. 3. Ask the operator of the other party to provide echo remedy 1. 4. Ask the operator of the other party to decrease the transmission level so that the other party will not receive an echo.

T-14-52

##285 [TX]	**DCN has been received after transmitting EOP**
Cause:	The Stop button was pressed during a communication.
Remedy:	Transmit once again.

T-14-53

##286 [TX]	**DCN has been received after transmitting EOM**
Cause:	The Stop button was pressed during a communication.
Remedy:	Transmit once again.

T-14-54

##287 [TX]	**DCN has been received after transmitting MPS**
Cause:	The Stop button was pressed during a communication.
Remedy:	Transmit once again.

T-14-55

##288 [TX]	**After transmitting EOP, a signal other than PIN, PIP, MCF, RTP, or RTN was received**
Cause:	The procedure signal has a fault.
Remedy:	Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-56

##289 [TX]	**After transmitting EOM, a signal other than PIN, PIP, MCF, RTP, or RTN was received**
Cause:	The procedure signal has a fault.
Remedy:	Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-57

##290 [TX]	**After transmitting MPS, a signal other than PIN, PIP, MCF, RTP, or RTN was received**
Cause:	The procedure signal has a fault.
Remedy:	Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-58

##670 [TX]	**In V.8 late start, the V.8 ability was detected in DIS from the other party and, in response, CI was transmitted; however, the procedure failed to advance, causing a T1 time-over condition**
Cause:	CI was transmitted, but the other party failed to receive it correctly and disconnect the line.
Remedy:	(1) Increase the transmission level so that the other party may receive CI correctly. (2) Prohibit the V.8/V.34 procedure.
Cause:	ANSam or DIS from the other party cannot be received correctly.
Remedy:	(1) Ask the operator of the other party to increase the transmission level so that the signal may be received correctly. (2) Prohibit the V.8/V.34 procedure.

T-14-59

##671 [RX]	**In V.8 call arrives, the procedure fails to advance to phase 2 after CM detection, causing a T1 time-over condition**
Cause:	In phase 1, the other party cannot receive the signal correctly and disconnect the line.
Remedy:	(1) Increase the transmission level so that the other party may receive the signal correctly. (2) Prohibit the V.8/V.34 procedure.
Cause:	In phase 1, the signal from the other party cannot be received correctly.
Remedy:	(1) Ask the operator of the other party to increase the transmission level so that the signal may be received correctly. (2) Prohibit the V.8/V.34 procedure.

T-14-60

##672 [TX]	**In V.34 transmission, the procedure fails to move from phase 2 to phase 3 and later, causing a T1 time-over condition**
Cause:	In phase 2, the other party cannot receive the signal correctly, and disconnect the line.

##672 [TX]	**In V.34 transmission, the procedure fails to move from phase 2 to phase 3 and later, causing a T1 time-over condition**
Remedy:	(1) Increase the transmission level so that the other party may receive the signal correctly. (2) Prohibit the V8./V.34 procedure.
Cause:	In phase 2, the signal from the other party cannot be received correctly.
Remedy:	(1) Ask the operator of the other party to increase the transmission level so that the signal may be received correctly. (2) Prohibit the V.8/V.34 procedure.

T-14-61

##673 [RX]	**In V.34 reception, the procedure fails to move from phase 2 to phase 3 and later, causing a T1 time-over condition**
Cause:	In phase 2, the other party cannot receive the signal correctly, and disconnect the line.
Remedy:	(1) Increase the transmission level so that the other party may receive the signal correctly. (2) Prohibit the V.8/V.34 procedure.
Cause:	In phase 2, the signal from the other party cannot be received correctly.
Remedy:	(1) Ask the operator of the other party to increase the transmission level so that the signal may be received correctly. (2) Prohibit the V.8/V.34 procedure.

T-14-62

##674 [TX]	**In V.34 transmission, the procedure fails to move from phase 3 or phase 4 to a control channel or later, causing a T1 time-over condition**
Cause:	In phase 3 or phase 4, the other party cannot receive the signal correctly, and disconnect the line.
Remedy:	(1) Increase the transmission level so that the other party may receive the signal correctly. (2) Prohibit the V.8/V.34 procedure.
Cause:	In phase 3 or phase 4, the signal from the other party cannot be received correctly.

##674 [TX]	**In V.34 transmission, the procedure fails to move from phase 3 or phase 4 to a control channel or later, causing a T1 time-over condition**
Remedy:	(1) Ask the operator of the other party to increase the transmission level so that the signal may be received correctly. (2) Prohibit the V.8/V.34 procedure.

T-14-63

##675 [RX]	**In V.34 reception, the procedure fails to move from phase 3 or phase 4 to a control channel or later, causing a T1 time-over condition**
Cause:	In phase 3 or phase 4, the other party cannot receive the signal correctly, and disconnect the line.
Remedy:	(1) Increase the transmission level so that the other party may receive the signal correctly. (2) Prohibit the V.8/V.34 procedure.
Cause:	In phase 3 or phase 4, the signal from the other party cannot be received correctly.
Remedy:	(1) Ask the operator of the other party to increase the transmission level so that the signal may be received correctly. (2) Prohibit the V.8/V.34 procedure.

T-14-64

##750 [TX]	**In ECM transmission, no significant signal can be received after transmission of PPS-NULL, and the allowed number of procedure signal re-transmissions was exceeded**
Cause:	The line condition is poor, and the other party cannot receive PPS-NULL correctly.
Remedy:	1. Increase the transmission level so that the other party may receive PPS-NULL correctly. 2. Adjust the NL equalizer so that the other party may receive PPS-NULL correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The line condition is poor, and the significant signal cannot be received correctly.
Remedy:	Ask the operator of the other party to increase the transmission level so that the signal may be received correctly.

T-14-65

##752 [TX]	**In ECM transmission, DCN was received after transmission of PPS-NULL**
Cause:	The line condition is poor, and the other party cannot receive PPS-NULL correctly.
Remedy:	1. Increase the transmission level so that the other party may receive PPS-NULL correctly. 2. Adjust the NL equalizer so that the other party may receive PPS-NULL correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The Stop key was pressed during a communication.
Remedy:	Transmit once again.

T-14-66

##753 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded or a T5 time-over (60 sec) condition occurred after transmission of PPS-NULL**
Cause:	The page buffer of the other party is full or is engaged; as such, although RNR was received after transmission of PPS-NULL and then RR was transmitted, no significant signal was received correctly thereafter.
Remedy:	1. Start G3 mode, and transmit once again (Prohibit the ECM mode). 2. Decrease the transmission start speed. 3. Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-67

##754 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded after transmission of PPS-NULL**
Cause:	The line condition is poor; as such, although PPR was received 4 times after transmission of PPS-NULL and then CTC was transmitted, the other party could not receive it correctly.
Remedy:	Increase the transmission level so that the other party may receive CTC correctly.

##754 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded after transmission of PPS-NULL**
Cause:	The line condition is poor; as such, although PPR was received 4 times after transmission of PPS-NULL and then CTC was transmitted, no significant signal was received correctly thereafter.
Remedy:	Ask the operator of the other party to increase the transmission level so that the signal may be received correctly.

T-14-68

##755 [TX]	**In ECM transmission, no significant signal can be received after transmission of PPS-MPS, and the allowed number of procedure signal re-transmissions was exceeded**
Cause:	The line condition is poor, and the other party cannot receive PPS-MPS correctly.
Remedy:	1. Increase the transmission level so that the other party may receive PPS-MPS correctly. 2. Adjust the NL equalizer so that the other party may receive PPS-MPS correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The line condition is poor, and the significant signal cannot be received correctly.
Remedy:	Ask the operator of the other party to increase the transmission level so that the signal may be received correctly.

T-14-69

##757 [TX]	**In ECM transmission, DCN was received after transmission of PPS-MPS**
Cause:	The line condition is poor, and the other party cannot receive PPS-MPS correctly.
Remedy:	1. Increase the transmission level so that the other party may receive PPS-MPS correctly. 2. Adjust the NL equalizer so that the other party may receive PPS-MPS correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The Stop key was pressed during a communication.

##757 [TX]	**In ECM transmission, DCN was received after transmission of PPS-MPS**
Remedy:	Transmit once again.

T-14-70

##758 [TX]	**In ECM transmission, the allowed number of procedure signal re-transmissions was exceeded or a T5 time-over (60 sec) condition occurred after transmission of PPS-MPS**
Cause:	The page buffer of the other party is full or is engaged; as such, although RNR was received after transmission of PPS-MPS and then RR was transmitted, no significant signal was received correctly thereafter.
Remedy:	1. Start G3 mode, and transmit once again (Prohibit the ECM mode). 2. Decrease the transmission start speed. 3. Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-71

##759 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded after transmission of PPS-MPS**
Cause:	The line condition is poor; as such, although PPR was received 4 times after transmission of PPS-MPS and then CTC was transmitted, the other party could not receive it correctly.
Remedy:	Increase the transmission level so that the other party may receive CTC correctly.
Cause:	The line condition is poor; as such, although PPR was received 4 times after transmission of PPS-MPS and then CTC was transmitted, no significant signal was received correctly thereafter.
Remedy:	Ask the operator of the other party to increase the transmission level so that the signal may be received correctly.

T-14-72

##760 [TX]	**In ECM transmission, no significant signal can be received after transmission of PPS-EOM, and the allowed number of procedure signal re-transmissions was exceeded**
Cause:	The line condition is poor, and the other party cannot receive PPS-EOM correctly.
Remedy:	1. Increase the transmission level so that the other party may receive PPS-EOM correctly. 2. Adjust the NL equalizer so that the other party may receive PPS-EOM correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The line condition is poor, and the significant signal cannot be received correctly.
Remedy:	Ask the operator of the other party to increase the transmission level so that the signal may be received correctly.

T-14-73

##762 [TX]	**In ECM transmission, DCN was received after transmission of PPS-EOM**
Cause:	The line condition is poor, and the other party cannot receive PPS-EOM correctly.
Remedy:	1. Increase the transmission level so that the other party may receive PPS-EOM correctly. 2. Adjust the NL equalizer so that the other party may receive PPS-EOM correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The Stop key was pressed during a communication.
Remedy:	Transmit once again.

T-14-74

##763 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded or a T5 time-over (60 sec) condition occurred after transmission of PPS-EOM**
Cause:	The page buffer of the other party is full or is engaged; as such, although RNR was received after transmission of PPS-EOM and then RR was transmitted, no significant signal was received correctly thereafter.
Remedy:	1. Start G3 mode, and transmit once again (Prohibit the ECM mode). 2. Decrease the transmission start speed. 3. Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-75

##764 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded after transmission of PPS-EOM**
Cause:	The line condition is poor; as such, although PPR was received 4 times after transmission of PPS-EOM and then CTC was transmitted, the other party could not receive it correctly.
Remedy:	Increase the transmission level so that the other party may receive CTC correctly.
Cause:	The line condition is poor; as such, although PPR was received 4 times after transmission of PPS-EOM and then CTC was transmitted, no significant signal was received correctly thereafter.
Remedy:	Ask the operator of the other party to increase the transmission level so that the signal may be received correctly.

T-14-76

##765 [TX]	**In ECM transmission, no significant signal can be received after transmission of PPS-EOP, and the allowed number of procedure signal re-transmissions was exceeded**
Cause:	The line condition is poor, and the other party cannot receive PPS-EOP correctly.

##765 [TX]	**In ECM transmission, no significant signal can be received after transmission of PPS-EOP, and the allowed number of procedure signal re-transmissions was exceeded**
Remedy:	1. Increase the transmission level so that the other party may receive PPS-EOP correctly. 2. Adjust the NL equalizer so that the other party may receive PPS-EOP correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The line condition is poor, and the significant signal cannot be received correctly.
Remedy:	Ask the operator of the other party to increase the transmission level so that the signal may be received correctly.

T-14-77

##767 [TX]	**In ECM transmission, DCN was received after transmission of PPS-EOP**
Cause:	The line condition is poor, and the other party cannot receive PPS-EOP correctly.
Remedy:	1. Increase the transmission level so that the other party may receive PPS-EOP correctly. 2. Adjust the NL equalizer so that the other party may receive PPS-EOP correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The Stop key was pressed during a communication.
Remedy:	Transmit once again.

T-14-78

##768 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded or a T5 time-over (60 sec) condition occurred after transmission of PPS-EOP**
Cause:	The page buffer of the other party is full or is engaged; as such, although RNR was received after transmission of PPS-EOP and then RR was transmitted, no significant signal was received correctly thereafter.
Remedy:	1. Start G3 mode, and transmit once again (Prohibit the ECM mode). 2. Decrease the transmission start speed. 3. Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-79

##769 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded after transmission of PPS-EOP**
Cause:	The line condition is poor; as such, although PPR was received 4 times after transmission of PPS-EOP and then CTC was transmitted, the other party could not receive it correctly.
Remedy:	Increase the transmission level so that the other party may receive CTC correctly.
Cause:	The line condition is poor; as such, although PPR was received 4 times after transmission of PPS-EOP and then CTC was transmitted, no significant signal was received correctly thereafter.
Remedy:	Ask the operator of the other party to increase the transmission level so that the signal may be received correctly.

T-14-80

##770 [TX]	**In ECM transmission, no significant signal can be received after transmission of EOR-NULL, and the allowed number of procedure signal re-transmissions was exceeded**
Cause:	The line condition is poor, and the other party cannot receive EOR-NULL correctly.

##770 [TX]	**In ECM transmission, no significant signal can be received after transmission of EOR-NULL, and the allowed number of procedure signal re-transmissions was exceeded**
Remedy:	1. Increase the transmission level so that the other party may receive EOR-NULL correctly. 2. Adjust the NL equalizer so that the other party may receive EOR-NULL correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The line condition is poor, and the significant signal cannot be received correctly.
Remedy:	Ask the operator of the other party to increase the transmission level so that the signal may be received correctly.

T-14-81

##772 [TX]	**In ECM transmission, DCN was received after transmission of EOR-NULL**
Cause:	The line condition is poor, and the other party cannot receive EOR-NULL correctly.
Remedy:	1. Increase the transmission level so that the other party may receive EOR-NULL correctly. 2. Adjust the NL equalizer so that the other party may receive EOR-NULL correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The Stop key was pressed during a communication.
Remedy:	Transmit once again.

T-14-82

##773 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded or a T5 time-over (60 sec) condition occurred after transmission of EOR-NULL**
Cause:	The page buffer of the other party is full or is engaged; as such, although RNR was received after transmission of EOR-NULL and then RR was transmitted, no significant signal was received correctly thereafter.

##773 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded or a T5 time-over (60 sec) condition occurred after transmission of EOR-NULL**
Remedy:	1. Start G3 mode, and transmit once again (Prohibit the ECM mode). 2. Decrease the transmission start speed. 3. Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-83

##774 [TX]	**In ECM transmission, ERR was received after transmission of EOR-NULL**
Cause:	The line condition is poor, and the other party cannot often receive the image signal correctly.
Remedy:	1. Increase the transmission level so that the other party may receive the image signal correctly. 2. Adjust the NL equalizer so that the other party may receive the image signal correctly.
Cause:	The other party malfunctioned because of an echo.
Remedy:	1. Using a manual call, press the Start button after hearing the 1st DIS from the other party. 2. To prevent response to the 1st DIS from the other party, put a relatively long pause to the telephone number when registering an auto dialing number. 3. Ask the operator of the other party to provide echo remedy 1. 4. Ask the operator of the other party to decrease the transmission level so that the other party will not receive an echo.

T-14-84

##775 [TX]	**In ECM transmission, no significant signal can be received after transmission of EOR-MPS, and the allowed number of procedure signal re-transmissions was exceeded**
Cause:	The line condition is poor, and the other party cannot receive EOR-MPS correctly.

##775 [TX]	**In ECM transmission, no significant signal can be received after transmission of EOR-MPS, and the allowed number of procedure signal re-transmissions was exceeded**
Remedy:	1. Increase the transmission level so that the other party may receive EOR-MPS correctly. 2. Adjust the NL equalizer so that the other party may receive EOR-MPS correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The line condition is poor, and the significant signal cannot be received correctly.
Remedy:	Ask the operator of the other party to increase the transmission level so that the signal may be received correctly.

T-14-85

##777 [TX]	**In ECM transmission, DCN was received after transmission of EOR-MPS**
Cause:	The line condition is poor, and the other party cannot receive EOR-MPS correctly.
Remedy:	1. Increase the transmission level so that the other party may receive EOR-MPS correctly. 2. Adjust the NL equalizer so that the other party may receive EOR-MPS correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The Stop key was pressed during a communication.
Remedy:	Transmit once again.

T-14-86

##778 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded or a T5 time-over (60 sec) condition occurred after transmission of EOR-MPS**
Cause:	The page buffer of the other party is full or is engaged; as such, although RNR was received after transmission of EOR-MPS and then RR was transmitted, no significant signal was received correctly thereafter.

##778 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded or a T5 time-over (60 sec) condition occurred after transmission of EOR-MPS**
Remedy:	1. Start G3 mode, and transmit once again (Prohibit the ECM mode). 2. Decrease the transmission start speed. 3. Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-87

##779 [TX]	**In ECM transmission, ERR was received after transmission of EOR-MPS**
Cause:	The line condition is poor, and the other party cannot often receive the image signal correctly.
Remedy:	1. Increase the transmission level so that the other party may receive the image signal correctly. 2. Adjust the NL equalizer so that the other party may receive the image signal correctly.
Cause:	The other party malfunctioned because of an echo.
Remedy:	1. Using a manual call, press the Start button after hearing the 1st DIS from the other party. 2. To prevent response to the 1st DIS from the other party, put a relatively long pause to the telephone number when registering an auto-dialing number. 3. Ask the operator of the other party to provide echo remedy 1. 4. Ask the operator of the other party to decrease the transmission level so that the other party will not receive an echo.

T-14-88

##780 [TX]	**In ECM transmission, no significant signal can be received after transmission of EOR-EOM, and the allowed number of procedure signal re-transmissions was exceeded**
Cause:	The line condition is poor, and the other party cannot receive EOR-EOM correctly.

##780 [TX]	**In ECM transmission, no significant signal can be received after transmission of EOR-EOM, and the allowed number of procedure signal re-transmissions was exceeded**
Remedy:	1. Increase the transmission level so that the other party may receive EOR-EOM correctly. 2. Adjust the NL equalizer so that the other party may receive EOR-EOM correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The line condition is poor, and the significant signal cannot be received correctly.
Remedy:	Ask the operator of the other party to increase the transmission level so that the signal may be received correctly.

T-14-89

##782 [TX]	**In ECM transmission, DCN was received after transmission of EOR-EOM**
Cause:	The line condition is poor, and the other party cannot receive EOR-EOM correctly.
Remedy:	1. Increase the transmission level so that the other party may receive EOR-EOM correctly. 2. Adjust the NL equalizer so that the other party may receive EOR-EOM correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The Stop key was pressed during a communication.
Remedy:	Transmit once again.

T-14-90

##783 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded or a T5 time-over (60 sec) condition occurred after transmission of EOR-EOM**
Cause:	The page buffer of the other party is full or is engaged; as such, although RNR was received after transmission of EOR-EOM and then RR was transmitted, no significant signal was received correctly thereafter.

##783 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded or a T5 time-over (60 sec) condition occurred after transmission of EOR-EOM**
Remedy:	1. Start G3 mode, and transmit once again (Prohibit the ECM mode). 2. Decrease the transmission start speed. 3. Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-91

##784 [TX]	**In ECM transmission, ERR was received after transmission of EOR-EOM**
Cause:	The line condition is poor, and the other party cannot often receive the image signal correctly.
Remedy:	1. Increase the transmission level so that the other party may receive the image signal correctly. 2. Adjust the NL equalizer so that the other party may receive the image signal correctly.
Cause:	The other party malfunctioned because of an echo.
Remedy:	1. Using a manual call, press the Start button after hearing the 1st DIS from the other party. 2. To prevent response to the 1st DIS from the other party, put a relatively long pause to the telephone number when registering an auto-dialing number. 3. Ask the operator of the other party to provide echo remedy 1. 4. Ask the operator of the other party to decrease the transmission level so that the other party will not receive an echo.

T-14-92

##785 [TX]	**In ECM transmission, no significant signal can be received after transmission of EOR-EOP, and the allowed number of procedure signal re-transmissions was exceeded**
Cause:	The line condition is poor, and the other party cannot receive EOR-EOP correctly.

##785 [TX]	**In ECM transmission, no significant signal can be received after transmission of EOR-EOP, and the allowed number of procedure signal re-transmissions was exceeded**
Remedy:	1. Increase the transmission level so that the other party may receive EOR-EOP correctly. 2. Adjust the NL equalizer so that the other party may receive EOR-EOP correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The line condition is poor, and the significant signal cannot be received correctly.
Remedy:	Ask the operator of the other party to increase the transmission level so that the signal may be received correctly.

T-14-93

##787 [TX]	**In ECM transmission, DCN was received after transmission of EOR-EOP**
Cause:	The line condition is poor, and the other party cannot receive EOR-EOP correctly.
Remedy:	1. Increase the transmission level so that the other party may receive EOR-EOP correctly. 2. Adjust the NL equalizer so that the other party may receive EOR-EOP correctly. 3. Add an echo protect tone to the V.29 modem signal for transmission.
Cause:	The Stop key was pressed during a communication.
Remedy:	Transmit once again.

T-14-94

##788 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded or a T5 time-over (60 sec) condition occurred after transmission of EOR-EOP**
Cause:	The page buffer of the other party is full or is engaged; as such, although RNR was received after transmission of EOR-EOP and then RR was transmitted, no significant signal was received correctly thereafter.

##788 [TX]	**In ECM transmission, the allowed number of procedure signal retransmissions was exceeded or a T5 time-over (60 sec) condition occurred after transmission of EOR-EOP**
Remedy:	1. Start G3 mode, and transmit once again (Prohibit the ECM mode). 2. Decrease the transmission start speed. 3. Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-95

##789 [TX]	**In ECM transmission, ERR was received after transmission of EOR-EOP**
Cause:	The line condition is poor, and the other party cannot often receive the image signal correctly.
Remedy:	1. Increase the transmission level so that the other party may receive the image signal correctly. 2. Adjust the NL equalizer so that the other party may receive the image signal correctly.
Cause:	The other party malfunctioned because of an echo.
Remedy:	1. Using a manual call, press the Start button after hearing the 1st DIS from the other party. 2. To prevent response to the 1st DIS from the other party, put a relatively long pause to the telephone number when registering an auto-dialing number. 3. Ask the operator of the other party to provide echo remedy 1. 4. Ask the operator of the other party to decrease the transmission level so that the other party will not receive an echo.

T-14-96

##790 [TX]	**In ECM reception, ERR was transmitted after reception of EOR-Q**
Cause:	The line condition is poor, and the image signal cannot often be received correctly.
Remedy:	1. Ask the operator of the other party to increase the transmission level so that the image signal may be received correctly. 2. Adjust the NL equalizer so that the image signal may be received correctly.
Cause:	The machine malfunctioned because of an echo.

##790 [TX]	**In ECM reception, ERR was transmitted after reception of EOR-Q**
Remedy:	1. Provide echo remedy 1. 2. Decrease the transmission level so that an echo is not received.

T-14-97

##791 [TX/RX]	**During an ECM mode procedure, a signal other than a significant signal was received**
Cause:	The procedure signal is faulty.
Remedy:	Record the protocol on a DAT or MD, and have it analyzed by the local Canon office and/or Technical Center.

T-14-98

##792 [RX]	**In ECM reception, PPS-NULL between partial pages cannot be detected**
Cause:	The line condition is poor, and PPS-NULL cannot be received.
Remedy:	1. Ask the operator of the other party to increase the transmission level so that PPS-NULL may be received correctly. 2. Adjust the NL equalizer so that PPS-NULL may be received correctly.

T-14-99

##793 [RX]	**In ECM reception, no effective frame was detected while signals were received at high speed, and a time-over condition occurred**
Cause:	The line condition is poor, and the other party cannot receive CFR correctly.
Remedy:	1. Increase the transmission level so that the other party may receive CFR correctly. 2. Adjust the NL equalizer so that the other party may receive CFR correctly.
Cause:	The line condition is poor, and the image signal cannot be received correctly.
Remedy:	1. Ask the operator of the other party to increase the transmission level so that the image signal may be received correctly. 2. Ask the operator of the other party to decrease the transmission start speed.

##793 [RX]	**In ECM reception, no effective frame was detected while signals were received at high speed, and a time-over condition occurred**
Cause:	An echo of CFR prevents reception of the training signal.
Remedy:	1. Provide echo remedy 2. 2. Decrease the transmission level so that an echo of the transmitted CFR will not be received.

T-14-100

##795 [TX/RX]	**A fault occurred in decoding process during a communication**
Cause:	The communication CODEC is busy.
Remedy:	1. Disconnecting and connecting the power cord. 2. Replace the image processor PCB.

14.2.3.2 Common Faults 0006-3714

No communication occurs.

T-14-101

Cause	The modular cable is not connected to the modular jack used for line connection.
Remedy	Connect the modular cable to the modular jack used for line connection.

A call cannot be made.

T-14-102

Cause	The selected type of line (tone or dial) is different from the type of the connected line.
Remedy	Select the type of line identical to the type of the connected line.

Chapter 15 Service Mode

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15.1 Outline

15.1.1 Outline

0006-2791

The following items may be checked or set in the machine's service mode, which consists of those found in existing fax machines. You may use them as you would on a fax machine.
The machine's service mode items are grouped into the following 15 blocks:

T-15-1

#1 SSSW: service soft switch

Use it to register/set basic fax functions (e.g., error control, echo remedy, communica-tion error correction).

#2 MENU: menu switch settings

Use it to register/set items related to functions needed at time of installation (e.g., NL equalizer, transmission level).

#3 NUMERIC param: numerical parameter settings

Use it to enter a numerical parameter for various functions related to the FAX/TEL switch-over.

#4 A SPECIAL: Do not change.

#4 B NCU: Do not change.

This item is set in conjunction with the setting of #5 TYPE so that the settings will comply with the communications standards of a specific country/region.

#4 C ISDN: not used

#5 TYPE: country/region setting

Use it to select a country/region from the list so that the setting of #1 through #4 will comply with the communications standards of the selected country/region.

#6 SCANNER: partially available for service

Do not change the settings except '7: CCD', used to adjust the image position; other-wise, the read image quality can adversely be affected.

#7 PRINTER: printer function settings

Use it to register/set items related to printer basic service functions (e.g., conditions for reducing received images). Or, settings may also be made for humidity sensor fixed mode.

#8 PDL: not used

#9 COUNTER: counter information

Use it to check various counter information.

#1 REPORT: report output
0

Use it to generate a report on various service data.

#1 DOWNLOAD: not used
1

#1 CLEAR: data initialization mode setting
2

Use it to initialize various data by selecting a specific item.

#1 ROM: ROM control
3

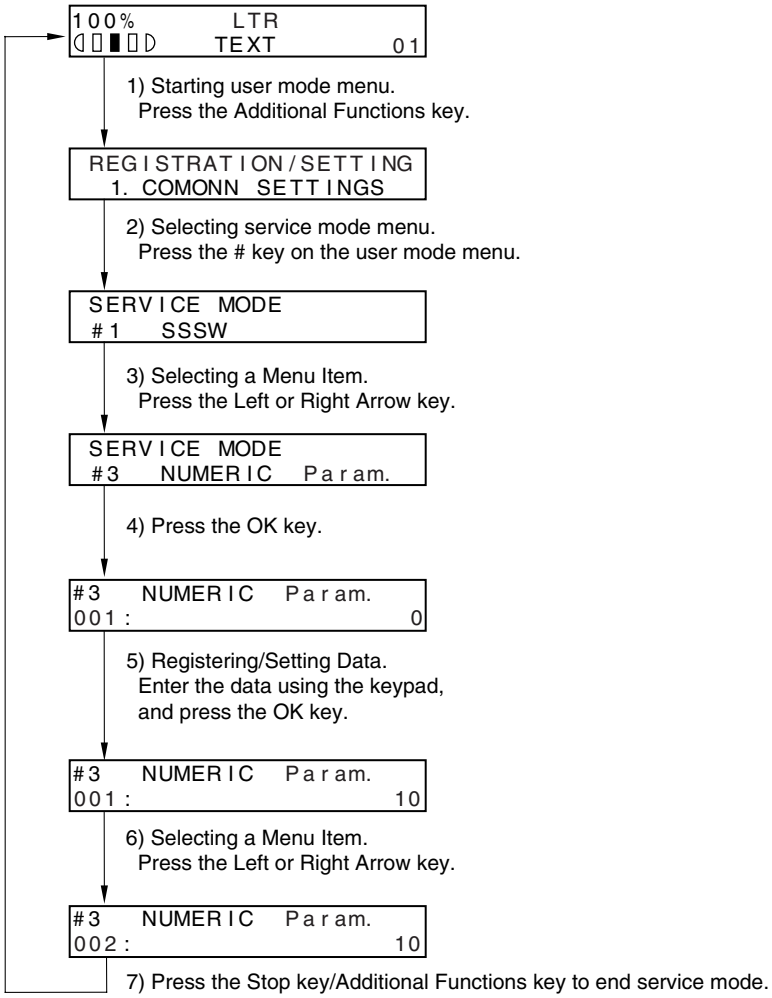
Use it to indicate information related to the ROM on the LCD (e.g., ROM version, checksum).

#1 CS SET: not used
4

TEST MODE: Use it to execute various testings.

15.1.2 Using Service Mode

0006-2825


100% LTR
TEXT 01
1) Starting user mode menu.
Press the Additional Functions key.
REGISTRATION/SETTING
1. COMONN SETTINGS
2) Selecting service mode menu.
Press the # key on the user mode menu.
SERVICE MODE
#1 SSSW
3) Selecting a Menu Item.
Press the Left or Right Arrow key.
SERVICE MODE
#3 NUMERIC Param.
4) Press the OK key.
#3 NUMERIC Param.
001: 0
5) Registering/Setting Data.
Enter the data using the keypad,
and press the OK key.
#3 NUMERIC Param.
001: 10
6) Selecting a Menu Item.
Press the Left or Right Arrow key.
#3 NUMERIC Param.
002: 10
7) Press the Stop key/Additional Functions key to end service mode.

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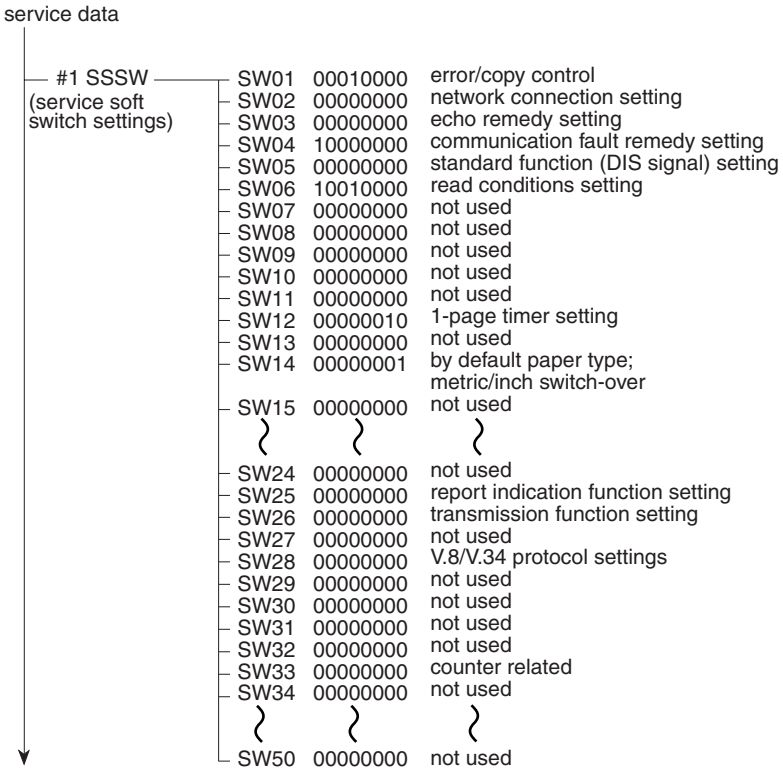
15.1.3 List of Menus

0006-2828


service data
#1 SSSW
(service soft switch settings)
SW01 00010000 error/copy control
SW02 00000000 network connection setting
SW03 00000000 echo remedy setting
SW04 10000000 communication fault remedy setting
SW05 00000000 standard function (DIS signal) setting
SW06 10010000 read conditions setting
SW07 00000000 not used
SW08 00000000 not used
SW09 00000000 not used
SW10 00000000 not used
SW11 00000000 not used
SW12 00000010 1-page timer setting
SW13 00000000 not used
SW14 00000001 by default paper type; metric/inch switch-over
SW15 00000000 not used
SW24 00000000 not used
SW25 00000000 report indication function setting
SW26 00000000 transmission function setting
SW27 00000000 not used
SW28 00000000 V.8/V.34 protocol settings
SW29 00000000 not used
SW30 00000000 not used
SW31 00000000 not used
SW32 00000000 not used
SW33 00000000 counter related
SW34 00000000 not used
SW50 00000000 not used

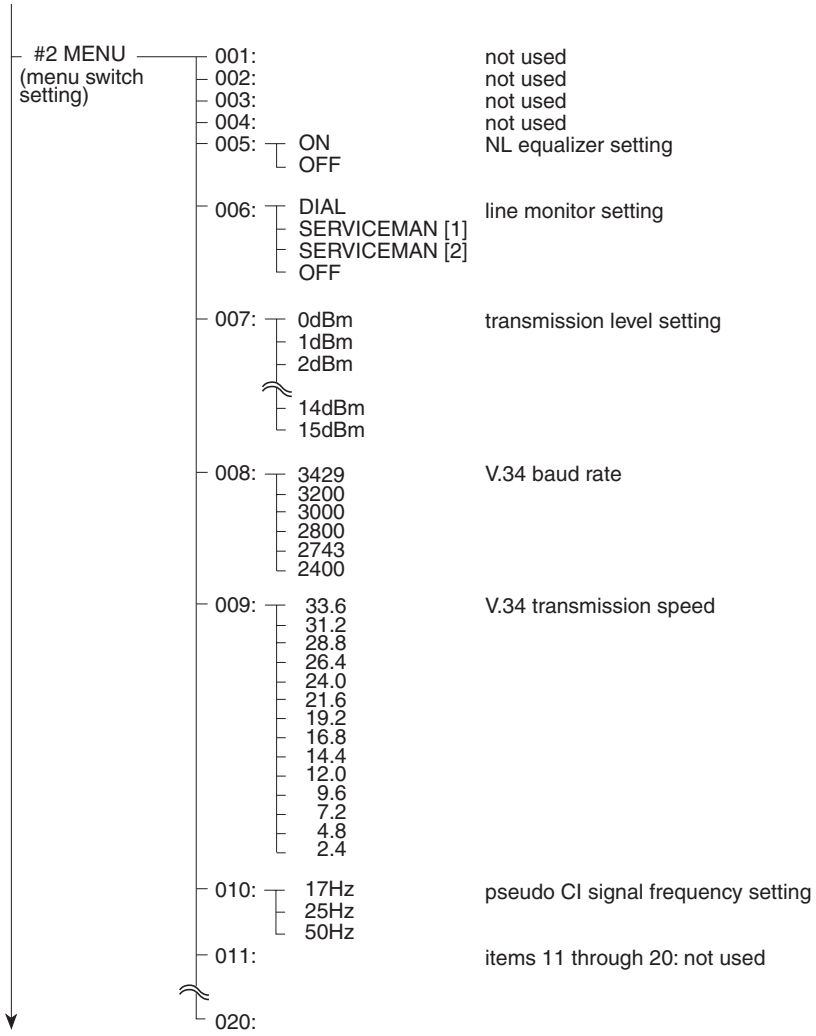
F-15-2

MEMO:

To select the SW number in #1 SSSW, use Paper Select key and Enlarge/Reduce key. To select a bit, use the Left or Right Arrow key.

⚠

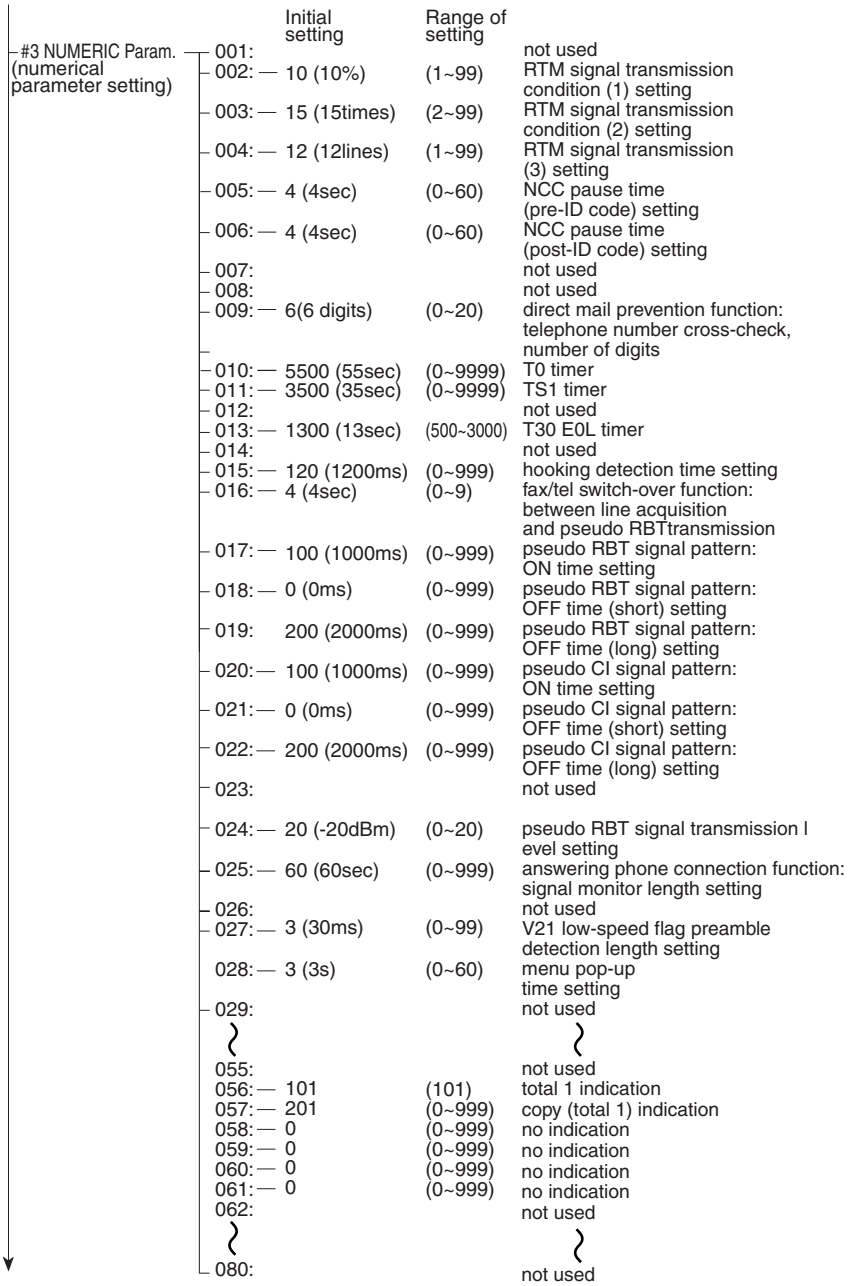
Do not change the following, reserved for the future; SW7 through 11, 13, 15 through 24, 27, 29 through 32, 34 through 50.



F-15-3

⚠

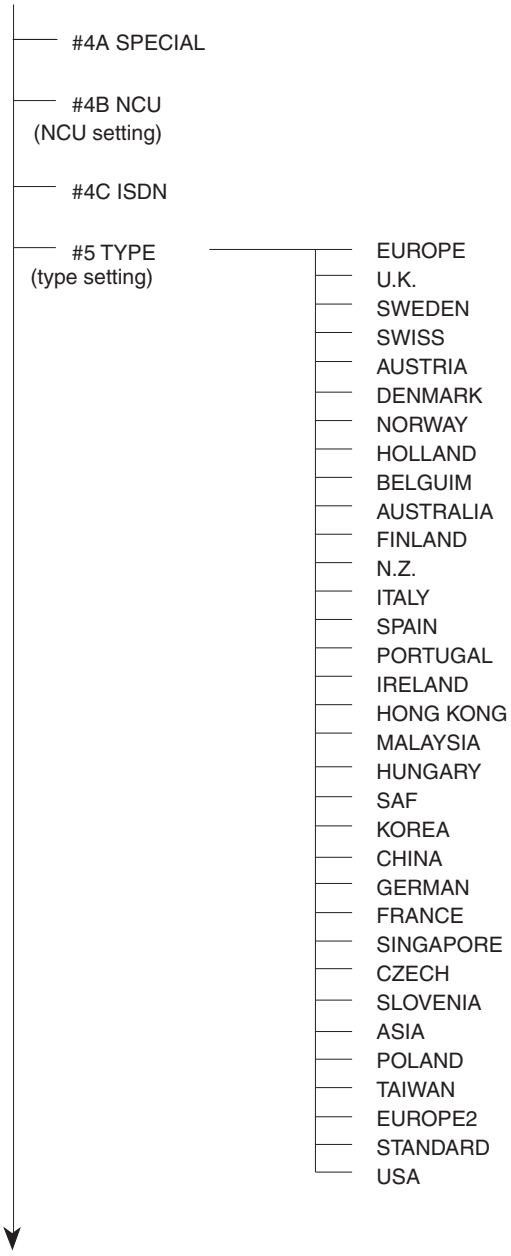
Do not change the following, reserved for the future: No. 01 through 04, 11 through 20.


#3 NUMERIC Param. (numerical parameter setting)
Initial setting
Range of setting
001: not used
002: 10 (10%) (1~99) RTM signal transmission condition (1) setting
003: 15 (15times) (2~99) RTM signal transmission condition (2) setting
004: 12 (12lines) (1~99) RTM signal transmission (3) setting
005: 4 (4sec) (0~60) NCC pause time (pre-ID code) setting
006: 4 (4sec) (0~60) NCC pause time (post-ID code) setting
007: not used
008: not used
009: 6(6 digits) (0~20) direct mail prevention function: telephone number cross-check, number of digits
010: 5500 (55sec) (0~9999) T0 timer
011: 3500 (35sec) (0~9999) TS1 timer
012: not used
013: 1300 (13sec) (500~3000) T30 E0L timer
014: not used
015: 120 (1200ms) (0~999) hooking detection time setting
016: 4 (4sec) (0~9) fax/tel switch-over function: between line acquisition and pseudo RBTtransmission
017: 100 (1000ms) (0~999) pseudo RBT signal pattern: ON time setting
018: 0 (0ms) (0~999) pseudo RBT signal pattern: OFF time (short) setting
019: 200 (2000ms) (0~999) pseudo RBT signal pattern: OFF time (long) setting
020: 100 (1000ms) (0~999) pseudo CI signal pattern: ON time setting
021: 0 (0ms) (0~999) pseudo CI signal pattern: OFF time (short) setting
022: 200 (2000ms) (0~999) pseudo CI signal pattern: OFF time (long) setting
023: not used
024: 20 (-20dBm) (0~20) pseudo RBT signal transmission l evel setting
025: 60 (60sec) (0~999) answering phone connection function: signal monitor length setting
026: not used
027: 3 (30ms) (0~99) V21 low-speed flag preamble detection length setting
028: 3 (3s) (0~60) menu pop-up time setting
029: not used
055: not used
056: 101 (101) total 1 indication
057: 201 (0~999) copy (total 1) indication
058: 0 (0~999) no indication
059: 0 (0~999) no indication
060: 0 (0~999) no indication
061: 0 (0~999) no indication
062: not used
080: not used

F-15-4

⚠

Do not use the following, reserved for the future: No. 001, 007, 008, 012, 014, 023, 026, 029 through 055, 062 through 080.



F-15-5

T-15-2

#4A SPECIAL

Do not change the setting.

#4B NCU (NCU setting)

The settings under this item are collectively and automatically set in conjunction with #5 TYPE to suit the communications standards of a specific country/region.

Not used. (Do not change the setting.)

#4C ISDN

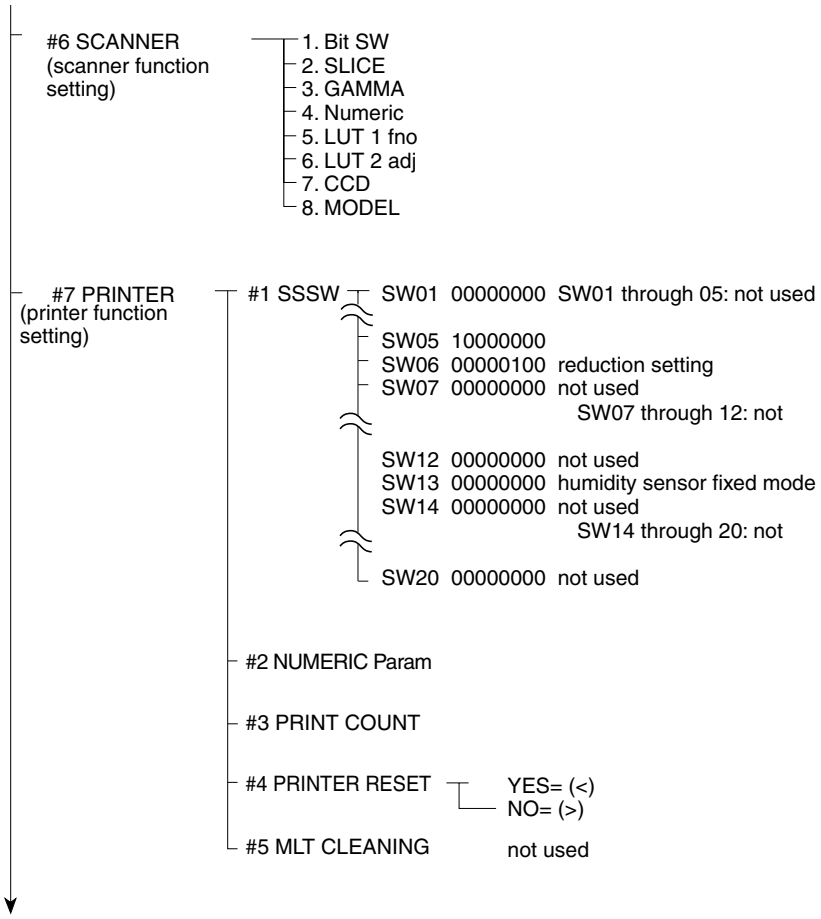
Not used.

#5 TYPE

Use it to select a specific country/region from the list so that the settings under #1 through #4 will comply with the communications standards of the selected country/region.

⚠

When changing the TYPE setting, be sure not to select a country/region which is not the country/region of installation.



F-15-6

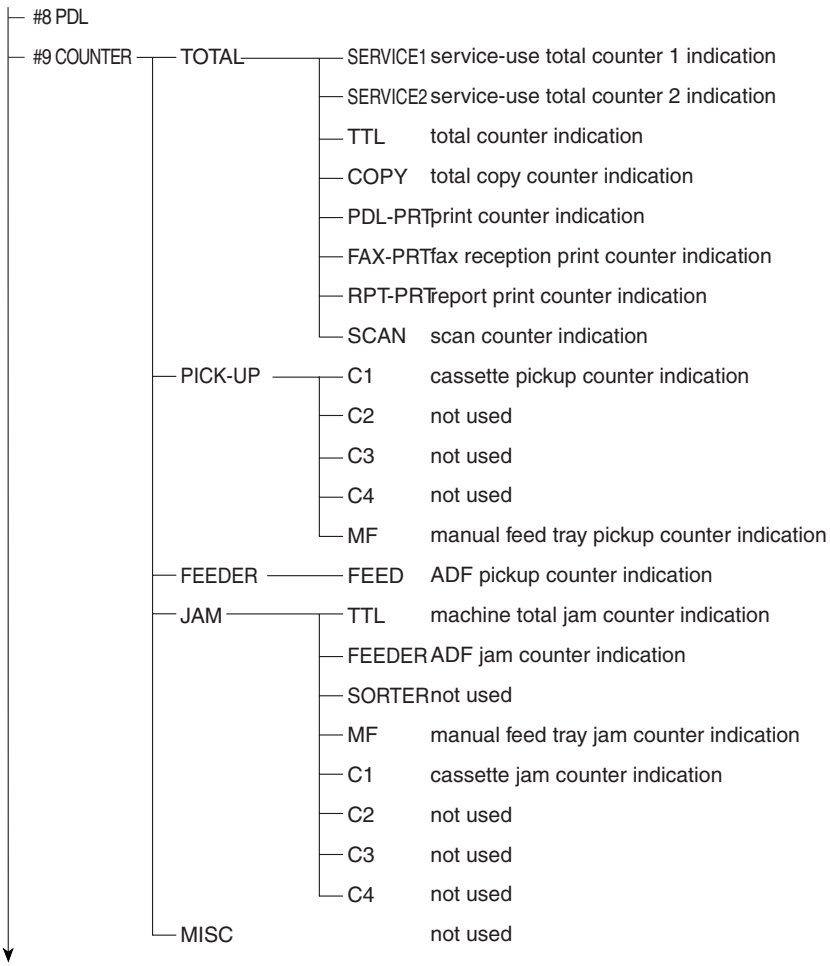
MEMO:

To select the SW number in #1 SSSW of #7 PRINTER, use Paper Select key and Enlarge/Reduce key. To select a bit, use the Left or Right Arrow key.

⚠

#6 SCANNER (scanner function setting);

The setting of this item can affect the read image quality. A change may be made to '7. CCD' when adjusting the image position; otherwise, do not use this item.Do not change the settings, as they are not in use: #7 PRINTER (printer function setting); #1 SSSW: SW01 through 05, 07 through 12, 14 though 20. Also, do not change the setting of '#2 NUMBER Param'.

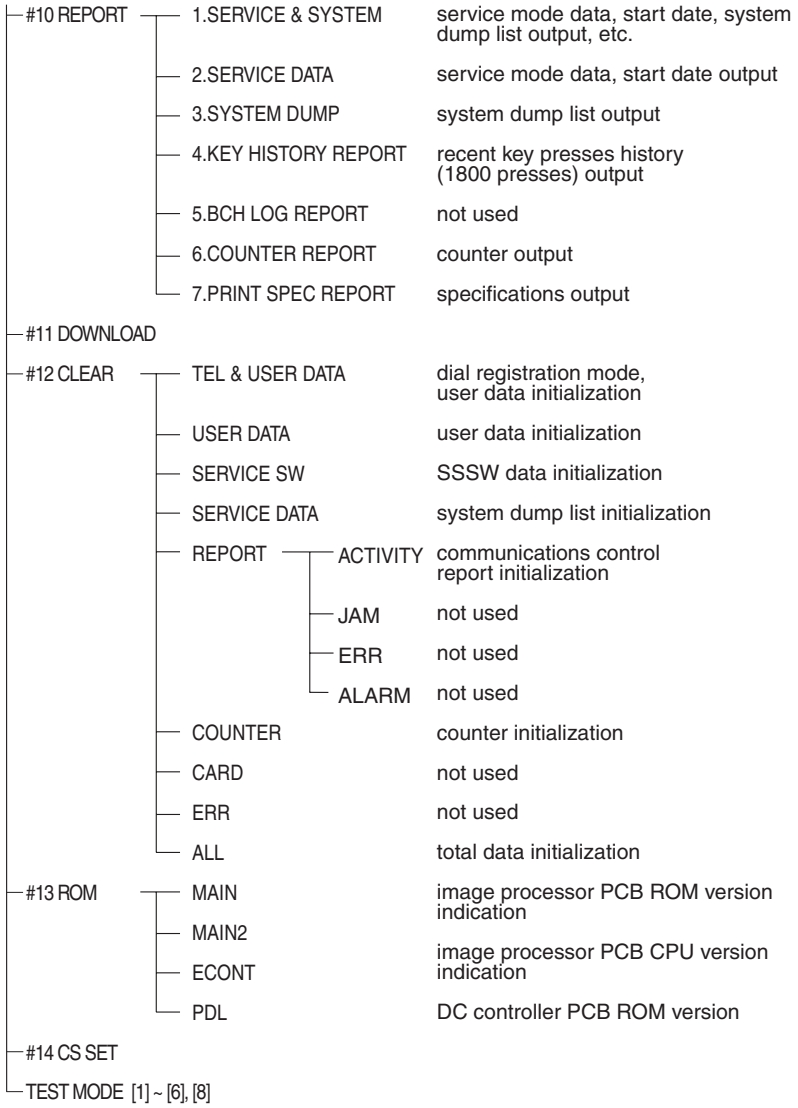


F-15-7

T-15-3

#8 PDL

Not used.



F-15-8

T-15-4

#11 DOWNLOAD

Not used.

#14 CS SET

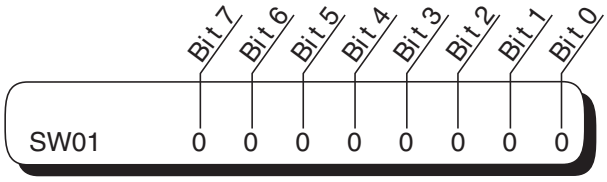
Not used.

15.2 Service Mode Table

15.2.1 Bit Switch Settings

0006-2856

A bit switch consists of 8 bits, used for registering/setting an item. The switch is configured as follows, and each bit is always either '0' or '1' :



F-15-9

⚠

Do not change service data marked "not used" for its initial setting.

#SSSW-SW01: error/copy control

T-15-5

Bit	Function	1	0	Factory setting
0	service error code	output	do not output	0
1	error dump list	output	do not output	0
2	not used	-	-	
3	not used	-	-	
4	not used	-	-	
5	not used	-	-	
6	not used	-	-	
7	user setting restriction	do not impose	impose	0

[Bit 0]
Use it to specify whether or not to generate a service error code. If set to '1', a service error code will be indicated on the report.

[Bit 1]
Use it to specify whether or not to generate an error dump list. When set to '1', an error dump list will be attached to an error TX report or a RX report generated in the event of an error.

[Bit 7]
Use it to impose or not impose restrictions on user settings. If set to '0', certain items cannot be set by the user, depending on the country setting. If set to '1', on the other hand, all items may be set by the user, regardless of the country setting.
#SSSW-SW02: network connection conditions setting

T-15-6

Bit	Function	1	0	Factory setting
0	start-up at memory clear list output fault	prohibit	do not prohibit	0
1	not used	-	-	
2	not used	-	-	
3	not used	-	-	
4	not used	-	-	
5	not used	-	-	
6	not used	-	-	
7	not used	-	-	

[Bit 0]
Use it to specify whether or not to put the machine in standby state if the memory clear list is not generated when the power is turned on after an error has occurred (e.g., running out of paper).
If set to '1', the machine will generate a memory clear list and enters standby state when the image data is cleared and the power is turned on.

If set to '1', moreover, the following takes place:
1. The alarm sounds, and the machine waits for correction; specifically,
a. The LCD indicates 'CHECK PRINTER'.
b. The machine will not start reception operation in response to arrival of data.
2. When an appropriate correction is made, the machine will automatically generate a memory clear list. If an error (e.g., jam) occurs during output, the machine goes back to 1. above.

If set to '0', on the other hand, the machine will sound the alarm and enters standby state.
#1 SSW-SW03: echo remedy setting

T-15-7

Bit	Function	1	0	Factory setting
0	not used	-	-	0
1	echo product tone in high-speed transmission	transmit	do not transmit	0
2	not used	-	-	
3	not used	-	-	
4	Transmission mode; long distance (1)	Yes	No	0
5	Transmission mode; long distance (2) or long distance (3)	Yes	No	0
6	Transmission mode	Long distance (3)	Long distance (2)	0
7	tonal signal before transmission of CED signal	transmit	do not transmit	0

[Bit 1]
Use it to specify whether or not to transmit an echo protection tone for high-speed transmission V.29 (9600 or 7200 bps; modem signal).
If an error occurs often because of a line condition at time of transmission, set it to '1'. If set to '1', unmodulated carrier will be transmitted as a sync signal before transmission of an image for about 200 msec.

MEMO:
The following error codes are associated with a line condition at time of transmission:
##100, ##104, ##281, ##282, ##283, ##750, ##755, ##760, ##765

[Bit 7]
Use it to specify whether or not to transmit a 1080-Hz tonal signal before transmission of the CED signal. Set it to '1' if an error occurs often because of an error at time of reception.

MEMO:
The following error codes are associated with an echo at time of reception:
##005, ##101, ##106, ##107, ##114, ##200, ##201, ##790

[Bit 4, 5, 6]
Select the transmission mode, long distance (1), long distance (2), or long distance (3). If errors due to echo occur frequently in transmission to overseas, set the transmission mode with the dial registration or service soft switch.

MEMO:
Codes for errors that can occur during transmission because of echo:
##005, ##100, ##101, ##102, ##104, ##201, ##280, ##281, ##283, ##284, ##750, ##760, ##765, ##774, ##779, ##784, ##794

TEL registration:
Set "Long distance (1)" when registering the one-touch speed dialing and coded speed dialing transmission mode. If errors do not disappear, try "Long distance (2)" and "Long distance (3)".
The transmission mode set in one-touch speed dialing and coded speed dialing registration takes priority over the one set with the service soft switch.
These bit switches are applicable to manually dialed numbers only. Look at the following table and set "Long distance (1)" If errors persist, try "Long distance (2)" or "Long distance (3)".

T-15-8

TX mode	Bit							
	7	6	5	4	3	2	1	0
Long distance (1)	*	0	0	1	0	0	*	0
Long distance (2)	*	0	1	0	0	0	*	0
Long distance (3)	*	1	1	0	0	0	*	0

*: 0 or 1 (depending on the respective setting)

Long distance (1) ignores the first DIS signal sent by the other fax.
Long distance (2) sends an 1850-Hz tonal signal when the DIS signal is transmitted.
Long distance (3) sends a 1650-Hz tonal signal when the DIS signal is transmitted.
#1 SSSW-SW04: communication fault remedy setting

T-15-9

Bit	Function	1	0	Factory setting
0	Monitor loop current	Yes	No	0
1	Check CI frequency	Yes	No	0
2	number of last flag sequence for procedure signal	2	1	0
3	reception mode after transmission of CFR signal	high-speed	high-speed/low-speed	0

Bit	Function	1	0	Factory setting
4	length of time during which to ignore low-speed signal after transmission of CFFR signal	1500ms	700ms	0
5	not used	-	-	
6	not used	-	-	
7	CED signal at time of manual reception	do not transmit	transmit	1

[Bit 0]
Selects whether or not to monitor loop current. When 'Yes' is selected, if loop current cannot be detected before dialing, or if the loop current is cut during or transmission, the line is released.

[Bit 1]
In automatic recieving, CI frequency check can be selected. If 'Yes'is selected, the upper and lower limits of the CI frequency are checked, and automatic recieving can only go ahead if both values meet German regulations.

[Bit 2]
Use it to specify the number of last flag sequences for the procedure signal (300 bps). Select '2' if the other party fails to receive the procedure signal transmitted by the machine normally.

MEMO:
The following error code are associated with transmission:
##100, ##280, ##281, ##750, ##753, ##754, ##755, ##758, ##759, ##760, ##763, ##764, ##765, ##768, ##769, ##770, ##773, ##775, ##778, ##780, ##783, ##785, ##788,

---

[Bit 3]
Use it to select reception to use after transmission of the CFR signal.
If an error occurs often because of the line condition at time of reception, set it to '1'and, at the same time, set 'ECM RX' to 'OFF' for user data.

MEMO:
The following error codes are associated with the line condition at time of reception:
##107, ##114, ##201
Be sure to change bit 4 before changing this bit; resort to this bit only if an error still occurs.
When set to '1' only high-speed (image) signals will be received after the transmission of the CFR signal.

[Bit 4]
Use it to select the length of time during which low-speed signals are ignored after transmission of the CFR signal. Select '1500 msec' if reception of image signals is not good because of a poor line condition.

[Bit 7]
Use it to specify whether or not to send the CED signal at time of manual reception.
Set it to "transmit" if the other party does not start transmission when manual reception is initiated.
#1 SSSW-SW05: standard function (DIS signal) setting

T-15-10

Bit	Function	1	0	Factory setting
0	not used	-	-	
1	not used	-	-	
2	not used	-	-	
3	transmit bit 33 and thereafter for DIS signal	prohibit	do not prohibit	0
4	not used	-	-	
5	not used	-	-	
6	not used	-	-	
7	not used	-	-	

[Bit 3]
Use it specify whether or not to transmit bit 33 and thereafter for the DIS signal.

If 'Prohibit' is selected, Super Fine reception from a non-Canon machine can no longer be used.

#1 SSSW-SW06: read condition setting

T-15-11

Bit	Function	1	0	Factory setting
0	not used	-	-	
1	not used	-	-	
2	not used	-	-	
3	not used	-	-	
4	original read width	LTR	A4	1
5	not used	-	-	

Bit	Function	1	0	Factory setting
6	not used	-	-	
7	not used	-	-	

[Bit 4]
Use it to select a read width for originals.
If 'LTR' is selected, the machine will read LTR originals at LTR width (212 mm).
#1 SSSW-SW12: page timer setting

T-15-12

Bit	Function	1	0	Factory setting
0	1-page time-out length for transmission/reception	1	0	0
1		1	0	1
2	1-page time-out length for transmission (HT transmission)	1	0	0
3		1	0	0
4	1-page time-out length for reception	1	0	0
5		1	0	0
6	not used	-	-	
7	page timer setting by transmission/reception	set	do not set	0

The machine is designed to stop communication when transmission/reception of a single page takes 32 min or more.
To set a time-out length, refer to the next page.
If '1' is selected for bit 7, the 1-page time-out length will be as set by bit 0 and bit 1.

T-15-13

Time-Out Length for Transmission/Reception

time-out length	Bit							
	7	6	5	4	3	2	1	0
8 min	0	*	*	*	*	*	0	0
16 min	0	*	*	*	*	*	0	1
32 min	0	*	*	*	*	*	1	0
64 min	0	*	*	*	*	*	1	1

T-15-14

Time-Out Length for Transmission (text mode)

time-out length	**Bit**							
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
8 min	1	*	*	*	*	*	0	0
16 min	1	*	*	*	*	*	0	1
32 min	1	*	*	*	*	*	1	0
64 min	1	*	*	*	*	*	1	1

T-15-15

Time-Out Length for Transmission (image mode other than text mode)

time-out length	**Bit**							
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
8 min	1	*	*	*	0	0	*	*
16 min	1	*	*	*	0	1	*	*
32 min	1	*	*	*	1	0	*	*
64 min	1	*	*	*	1	1	*	*

T-15-16

Time-Out Length for Reception

time-out length	**Bit**							
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
8 min	1	*	0	0	*	*	*	*
16 min	1	*	0	1	*	*	*	*
32 min	1	*	1	0	*	*	*	*
64 min	1	*	1	1	*	*	*	*

#1 SSSW-SW14: inch/meter resolution setting

T-15-17

Bit	Function	1	0	Factory setting
0	paper size identification	1	0	0
1	paper size identification	1	0	0
2	inch/meter resolution conversion scanning direction	main/sub scanning	sub scanning only	1
3	not used	-	-	
4	declare inch resolution	declare	do not declare	0
5	not used	-	-	
6	not used	-	-	
7	not used	-	-	

[Bit 0, 1]
Use a combination of bit 0 and bit 1 to set the size of paper (default side).
- if 0 and 0, A/B-configured paper.
- if 0 and 1, inch-configured paper
- if 1 and 0, A-configured paper
- if 1 and 1, A/B-configured paper

[Bit 2]
Use it to specify whether to convert an inch resolution into a metric resolution for images read at time of G3 transmission only in sub scanning direction or in both main and sub scanning direction.
The setting made here is effective only if bit 1 of SW05 of #1 SSSW is set to '1'.

[Bit 4]
Use it to specify whether or not to declare an inch resolution to the other party at time of G3 communication.
If set to '1' a declaration will be made using the DIS, DCS, or DTC signal to the effect that the machine is designed to read and record images at an inch resolution.

MEMO:
The type of image and the direction of scanning for inch/meter resolution conversion are determined by combinations of bits 1 and 2 of SW05 and bit 2 of SW14 of #1 SSSW as well as the type of dialing used.

- When One-Touch Dial/Coded Dial and Keypad/Redial Key Is in Use

T-15-18

SW05		SW14		Image and scanning direction subject to inch/meter conversion
bit1	**bit2**	**bit2**	**bit3**	
0	0	0	-	do not execute inch/meter conversion
0	0	1	-	
0	1	0	-	
0	1	1	-	
1	0	0	-	text image/sub scanning
1	0	1	-	text image/main scanning and sub scanning
1	1	0	-	text and photo image/sub scanning
1	1	1	-	text and photo image/main and sub scanning

#1 SSSW-SW25: report indication function setting

T-15-19

Bit	Function	1	0	Factory setting
0	transmission telephone number indicated on report	number of other party	number of caller	0
1	not used	-	-	
2	not used	-	-	
3	not used	-	-	
4	not used	-	-	
5	not used	-	-	
6	not used	-	-	
7	not used	-	-	

[Bit 0]
Use it to select the number to be indicated on the report, generated at the end of transmission.

T-15-20

Number of caller:	Select it to indicate the telephone number of the caller on the report.

Number of other party:	Select it to indicate the telephone number sent by the other party (CSI signal data).

MEMO:
If a change is made using a means other than one-touch dialing or speed dialing, the telephone number sent by the other party (CSI signal data) will be indicated on the report even when 'Number of caller' is selected.

#1 SSSW-S26: transmission function setting

T-15-21

Bit	Function	1	0	Factory setting
0	not used	-	-	
1	not used	-	-	
2	broadcast transmission confirmation	ask	do not ask	0
3	broadcast transmission prohibition	ask	do not ask	0
4	not used	-	-	
5	not used	-	-	
6	other party at time of broadcast transmission suspension	single party	all parties	0
7	error TX report at time of transmission suspension	do not generate	generate	0

[Bit 2]
Use it to specify whether or not to indicate a confirm message to prevent the user from making a broadcast by mistake when entering an address for a broadcast transmission.

[Bit 3]
Use it to specify whether or not to use broadcast transmission to prevent the user from making a broadcast by mistake when entering an address for a broadcast transmission.

[Bit 6]
Use it to specify whether or not to suspend a communication to all parties when a broadcast transmission is

suspended.

[Bit 7]
Use it to specify whether or not to generate an error TX report when a transmission is suspended by pressing the Stop key.
#1 SSSW-SW28: V.8/V.34 protocol settings

T-15-22

Bit	Function	1	0	Factory setting
0	Caller V.8 protocol	No	Yes	0
1	Called party V.8 protocol	No	Yes	0
2	Caller V.8 protocol late start	No	Yes	0
3	Called party V.8 protocol late start	No	Yes	0
4	V.34 reception fallback	Prohibited	Not prohibited	0
5	V.34 transmission fallback	Prohibited	Not prohibited	0
6	not used	-	-	
7	not used	-	-	

[Bit 0]
Select whether to use the V.8 protocol when calling. If NO is selected, the V.8 protocol is inhibited at calling and the V.21 protocol is used.

[Bit 1]
Select whether to use the V.8 protocol when called. If NO is selected, the V8 protocol is inhibited when called and the V.21 protocol is used.

[Bit 2]
If ANSam signal is not received during transmission (mainly manual transmission), select whether to use the V.8 protocol when the other fax machine declares the V.8 protocol in DIS signal. If NO is selected, the CI signal is not transmitted and the V.8 protocol is not used even if the DIS that specifies the V.8 protocol is received.

[Bit 3]
Select whether to declare the V.8 protocol in DIS signal for reception (mainly caller manual transmission). If NO is selected, the V.8 protocol cannot be used because it is not declared in DIS signal.

[Bit 4]

Select whether the receiver falls back during V.34 reception. If "Prohibit" is selected, the receiver does not fall back.

[Bit 5]
Select whether the transmitter falls beck during V.34 transmission. If "Prohibit" is selected, the transmitter does not fall back.
#1 SSSW-SW33: counter-related

T-15-23

Bit	Function	1	0	Factory setting
0	not used	-	-	0
1	indicate serial No. on counter check screen	No	Yes	
2	not used	-	-	
3	not used	-	-	
4	not used	-	-	
5	not used	-	-	
6	not used	-	-	
7	not used	-	-	

[Bit 1]
Use it to specific whether to indicate the machine serial No. on the Counter Check screen, appearing when the Counter key is pressed.
If 'Yes' is selected, the serial No. will be indicated. If 'no' is selected, on the other hand, the serial No. will not be indicated.

15.2.2 Menu Switch Settings

0006-3001

T-15-24

No.	Item	Selection	Initial setting
005	NL equalizer	ON, OFF	OFF
006	telephone line monitor	DIAL/SERVICEMAN [1]/SERVICEMAN[2]/OFF	DIAL
007	transmission level (ATT)	0 through 15 (ex: 15=-15dBm)	10

No.	Item	Selection	Initial setting
008	V.34 modulation speed upper limit	3429, 3200, 3000, 2800, 2743, 2400	3429
009	V.34 data speed upper limit	from 2.4 to 33.6 kbps	33.6
010	pseudo CI signal frequency	50Hz, 25Hz, 17Hz	25Hz

005 NL equalizer

Use it to turn on/off the NL equalizer.
Turn on the NL equalizer if an error occurs often because of the line condition at time of communication.

MEMO:

The following error codes are associated with the line condition at time of transmission.
##100, ##101, ##102, ##104, ##201, ##281, ##282, ##283, ##750, ##755,
##765, ##774, ##779, ##784, ##789
The following error codes are associated with the line condition at time of reception
##103, ##107, ##114, ##201, ##790, ##793

---

006 telephone line monitor

Use it to set telephone line motor functions:
DIAL: Select it to generate a monitor sound for the telephone line from the start of transmission to DIS.
SERVICEMAN [1]: Select it to generate a monitor sound of the telephone line from the start of a communication to its end.
SERVICEMAN [2]: not used
OFF: Select it to mute the monitor sound for the telephone line for the speaker.

007 ATT transmission level

Use it to set the transmission level (ATT).
Increase the transmission level if an error occurs often because of the line condition at time of a communication.

MEMO:

The following error codes are associated with the line condition at time of transmission:
##100, ##101, ##102, ##104, ##201, ##280, ##281, ##282, ##283, ##284,
##750, ##752, ##754, ##755, ##757, ##759, ##760, ##762, ##764, ##765,
##767, ##769, ##770, ##772, ##774, ##775, ##777, ##779, ##780, ##782,
##784, ##785, ##787, ##789
The following error codes are associated with the line condition at time of reception:

##103, ##106, ##107, ##201, ##793

008 V.34 modulation speed upper limit
Use it to set an upper limit to the modulation speed (baud rate) for the V.34 primary channel.

009 V.34 data speed upper limit
Use it to set an upper limit to the data transmission speed for the V.34 primary channel between 2.4K and 33.6K bps in increments of 2400 bps. (0: 2.4K to 13: 33.6K bps).

010 pseudo CI signal
Use it to set a frequency for the pseudo CI signal.
At times, certain types of external telephones fail to ring while fax/tel switch-over takes place. If so, change the frequency of the pseudo CI signal.

15.2.3 Numeric Parameter Setting

0006-3019

T-15-25

No.	Item	Range of settings	Initial setting
2	RTN transmission condition (1)	1 to 99%	10
3	RTN transmission condition (2)	2 to 99 times	15
4	RTN transmission condition (3)	1 to 99 lines	12
5	NCC pause length (pre-ID code)	0 to 60 sec	4
6	NCC pause length (post-ID code)	0 to 60 sec	4
9	number of digits of telephone numbers in comparison between transmitting and receiv-ing machine	0 to 20 digits	6
10	line connection identification time length	0 to 9999 (10ms)	5500
11	T.30 T1 timer (for reception)	0 to 9999 (10ms)	3500
13	T30.EOL timer	500 to 3000 (10ms)	1300
15	hooking detection time length	0 to 999 (10ms)	120
16	time to tentative response at time of fax/tel switch-over	0 to 9 sec	4
17	pseudo RBT signal pattern ON length	0 to 999 (10ms)	100
18	pseudo RBT signal pattern OFF time length (short)	0 to 999 (10ms)	0
19	pseudo RBT signal pattern OFF time length (long)	0 to 999 (10ms)	200

No.	Item	Range of settings	Initial setting
20	pseudo CI signal pattern ON time length	0 to 999 (10ms)	100
21	pseudo CI signal pattern OFF time length (short)	0 to 999 (10ms)	0
22	pseudo CI signal pattern OFF time length (long)	0 to 999 (10ms)	200
24	fax/tel switch-over pseudo RBT transmission level	0 to 20 dBm	20
25	answer telephone CNG motor time length	0 to 999 sec	60
27	V.21 low-speed flag preamble detection time length	1 to 99 (10ms)	3
28	menu selection screen display time length	1 to 60 sec	3
56	count type select 1	101	101
57	count type select 2	0 to 999	201
58	count type select 3	0 to 999	0
59	count type select 4	0 to 999	0
60	count type select 5	0 to 999	0
61	count type select 6	0 to 999	0

[No. 02. 03, 04]
Use it to set conditions for RTN signal transmission. If an error occurs often when the RTN signal is transmitted at time of reception, increase the parameters to loosen the RTN signal transmission conditions.

MEMO:
The following error codes are associated with the transmission of the RTN signal at time of reception:
##104, ##107, ##114, ##201
The RTN signal transmission condition (1) is the ratio of the number of error lines in relation to the total number of lines per page of reception images.
The RTN signal transmission condition (2) is the reference value*2 for burst errors*1.
The RTN signal transmission condition (3) is the number of errors not reaching the reference value for burst errors.
*1: transmission errors spanning several lines.
*2: If set to '15', a transmission error spanning 5 consecutive lines is identified as a burst error.
If any of these conditions is detected while an image signal is being revised, the RTN signal will be transmitted after receiving the procedure signal from the transmitting machine. A higher parameter will make the transmission of the RTN signal more difficult.

[No. 05]
Use it to set the length of item (pause) automatically put between the access code an the ID code when a number is

dialed on an NCC (new common carrier) line.

[No. 06]
Use it to set the length of time (pause) automatically put between the ID code and the telephone number of the other party when a number is dialed on an NCC (new common carrier) line.

[No. 09]
Use it to set the number of TSI comparison digits (last XX digits) for a telephone number cross check.

[No. 10]
Use it to set the length of time for line connection identification. If an error occurs often because of the line condition at time of a communication, increase the parameter.

MEMO:
The line condition detection time length refers to the length between when the dial signal is transmitted and when the line condition is cut in relation to the transmitting side, while it is the length between when the DIS signal is transmitted and when the line is cut in relation to the receiving side.

[No. 11]
The setting of the T1 timer varies from country to country (PTT). The T1 timer is variable.

[No. 13]
If the length of data for a single line is too long (e.g., computer fax), increase the 1-line transmission time for possible reception to prevent a reception error.

[No. 15]
Use it to set the hooking detection time.

[No. 16]
Use it to set the time length between when the line is acquired and when the pseudo RBT is transmitted when making a fax/tel switch-over.

[No. 17, 18, 19]
Use it to set a pattern of the pseudo RBT signal transmitted when making a fax/tel switchover.

[NO. 20, 21, 22]
Use it to set the pattern of the pseudo CI signal transmitted when making a fax/tel switchover.

[No. 24]
Use it to set the pseudo RBT transmission level used when making a fax/tel switch-over.

[No. 25]

Use it to set the length of time during which the absence of sound on the line, 2nd NSS signal, or CNG signal transmitted by the other party is monitored after the answering phone acquires the telephone line when answering machine mode is selected.

[No. 27]
Use it to change the detection evaluation time. (Command analysis is started when the V.21 low-speed command preamble is detected continuously for a specific period of time.)

[No. 28]
Use it to set the length of time during which the Menu Select screen is indicated on the LCD.

[No. 56 through 61]
Use it to confirm the count type indicated on the Counter Check screen, which appears in response to a press on the Counter key.
When '0' is selected, count type will not be indicated.
No.56: fix to total 1 (101) for the counter 1 reading.
No.57: use it to select a count type for the counter 2 reading.
No.58: use it to select a count type for the counter 3 reading.
No.59: use it to select a count type for the counter 4 reading.
No.60: use it to select a count type for the counter 5 reading.
No.61: use it to select a count type for the counter 6 reading.
If above selections have been made, the counters will be displayed in order of counter numbers.
<Soft Counter Specifications>
The soft counters are classified as follows according to input numbers:
101: total
102: not used
103: not used
104: not used
201: copy
202: not used
203: not used
204: not used
301: print (indicates sum of prints from PC and report prints)
302: not used
303: not used
304: not used
331: PDL (indicates prints from PC only)
332: not used
333: not used
334: not used
505: scan
506: not used
507: not used

508: not used
701: received print
702: not used
703: not used
704: not used
801: report print
802: not used
803: not used
804: not used

T-15-26

Guide to the Table

yes: available for the machine.

Setting			**Basic counter**				
			Copy	**PDL print**	**Received print**	**Report print**	**Scan**
total	total 1	101	yes	yes	yes	yes	
copy	total 1	201	yes				
print	total 1	301		yes		yes	
PDL 1	total 1	331		yes			
received print							
	total 1	701			yes		
report print							
	total 1	801				yes	
scan	total 1	505					yes

15.2.4 SPECIAL Setting

0006-3063

⚠

Do not change the setting; otherwise, the machine may malfunction.

15.2.5 NCU Setting

0006-3065

⚠

The settings of this item are collectively set in relation to the setting of #5 TYPE so that all values will comply with the communications standards of a specific country/region.

15.2.6 ISDN Setting

0006-3066

Not used.

15.2.7 Country/Region of Installation

0006-3070

When a country/region is selected for the indicated list, the data under #4 NCU will be set to suit the communication standards of the county/region.

⚠

Be sure not to select a different country/region from the country/region of installation.

15.2.8 Setting the Original Reading Functions

0006-3078

T-15-27

Item	Description
1. Bit SW	Do not change the setting; otherwise, the read image quality can be lost.
2. SLICE	
3. GAMMA	
4. Numeric	
5. LUT 1 fno	
6. LUT 2 adj	
7. CCD	partially hanged
8. MODEL	not used

T-15-28

7. CCD Settings

No.	Item	Unit of adjustment
1 to 18	Do not change.	-
19	shading position adjustment*1	(*2)

7. CCD Settings

No.	Item	Unit of adjustment
21	left/right edge read start position adjustment (book mode)	1 unit = approx. 0.03 mm
23	leading edge read start position adjustment (book mode)	1 unit = 0.1 mm
24	leading edge read start position (ADF mode)	1 unit = 0.1 mm
25	trailing edge read end position adjustment (ADF mode)	1 unit = 0.1 mm
26 to 33	Do not change.	-
34	original feed speed adjustment (ADF mode)	1 unit = approx. 0.5 mm

*1: Make adjustments only When white lines occur. (See 3.1.12 of Chapter 7.)
*2: 1 of the 4 shading levels is selected by inputting a number from 0 to 3.
(In the case of being imputed a number over 4, the shading level is equal to that selected 0.)
The factory settings of these adjustments differ from machine to machine. For instructions on adjustment, see 1.2.4 of Chapter 7 or 1.3.4 of Chapter 7.

15.2.9 Setting the Printer Parameters

0006-3082

T-15-29

#1 SSSW Setting

#7 PRINTER-#1 SSSW-SW06 (reduction setting)

Bit	Function	1	0	Factory setting
0	reduction at time of image divi-sion	prohibit	do not prohibit	0
1	not used	-	-	
2	not used	-	-	
3	not used	-	-	
4	not used	-	-	
5	not used	-	-	
6	not used	-	-	
7	not used	-	-	

[bit 0]
Use it to specify whether or not to reduce the received image of an extra-long original if it can be printed in divisions after reducing to the maximum reduction ratio (70%).

prohibit:
select it to divide and print on the next page (Direct).
For instance, if an extra-length original as long as 2.5 A4R original is received, it will be divided into 3 A4R sheets for printing; the image will be in Direct.
do not prohibit:
select it to print the image by reducing it to fit a single page (in divided print mode).
For instance, if an extra-length original as long as 2.5 A4R originals is received, it will be reduced to 70% to print on 2 A4R sheets.

T-15-30

#7 PRINTER #1 SSSW-SW13 (humidity sensor fixed mode)

Bit	Function	1	0	Factory setting
0	humidity sensor fixed mode selected	1	0	0
1		1	0	0
2	not used	-	-	-
3	not used	-	-	-
4	not used	-	-	-
5	not used	-	-	-
6	not used	-	-	-
7	not used	-	-	-

[bit 0, 1]
Use bits 0 and 1 to select humidity sensor fixed mode; the combinations of modes and bit SW settings are as follows:

T-15-31

Bit1	Bit0	Mode
0	0	fixed mode disabled
0	1	L/L mode
1	0	N/N mode
1	1	H/H mode

T-15-32

fixed mode disabled:	use it for normal environment.
L/L mode:	use it if the environment is L/L, and the site of installation is subject to an extremely high level of temperature/humidity.
N/N mode:	use it if the environment is N/N, and the site of installation is subject to an extremely high/low level of temperature/humidity.
H/H mode:	use it if the environment is H/H, and the site of installation is subject to an extremely low level of temperature/humidity.

T-15-33

#2 NUMERIC Param. Setting

⚠

Do not change the setting; otherwise, the machine may malfunction.

T-15-34

#3 PRINT COUNT

Use it to indicate the number of prints.

T-15-35

#4 PRINT RESET

Use it to reset the printer; or, use it to clear service error 'E000'.

T-15-36

#5 MLT CLEANING

Not used.

15.2.10 PDL

0006-3099

T-15-37

#8 PDL

Not used.

15.2.11 Counter

0006-3102

The machine is equipped with various counters, whose readings may be used to obtain an idea of when to replace specific parts.

T-15-38

The COUNTER items are as follows:

Level 1 item	Level 2 item	Level 3 item	Description
COUNTER			
	TOTAL (total-orientated counter)		
		SERVICE1	service-use total counter 1
		SERVICE2	service-use total counter 2
		TTL	total counter
		COPY	total copy counter
		PDL-PRT	print counter
		FAX-PRT	fax reception print counter
		RPT-PRT	report print counter

The COUNTER items are as follows:

Level 1 item	Level 2 item	Level 3 item	Description
		SCAN	scan counter
	PICK-UP (pickup-related counter)*1		
		C1	cassette pickup counter
		C2	not used
		C3	not used
		C4	not used
		MF	manual feed tray pickup counter
	FEEDER (ADF-related counter)		
		FEED	ADF pickup counter
	JAM (jam counter)		
		TTL	machine total jam counter
		FEEDER	ADF jam counter
		SORTER	not used
		MF	manual feed tray jam counter
		C1	cassette jam counter
		C2	not used
		C3	not used
		C4	not used
	MISC		not used

*1: Not incremented at time of printing from the PC.

Clearing the Counter Readings

Start service mode, and select [#11 CLEAR]; then, press the OK key. Thereafter, select [COUNTER], and press the OK key to clear all counter readings.

MEMO:
Generating a Counter Report
Start service mode, and select [#10 REPORT]; then, press the OK key.
Thereafter, select [COUNTER REPORT], and press the OK key to obtain a counter report.

15.2.12 Generating a Report

0006-3114

The following is a list of the reports that may be generated, showing particulars of each:

T-15-39

Item	Description
SERVICE&SYSTEM	service data list, system dump print list
SERVICE DATA	service mode #1 through #7, #13; start date
SYSTEM DUMP	number of communications, number of receptions, number of recording sheets, number of errors
KEY HISTORY REPORT	1800 most recent key presses
BCH LOG REPORT	not used
COUNTER REPORT	counter readings
PRINT SPEC REPORT	TYPE setting, printing speed, memory size, ROM indication, adjustment data

15.2.13 Downloading

0006-3120

Not used.

15.2.14 Clearing

0006-3122

T-15-40

Item	Level 2 item	Description
TEL & USER		Use it to clear all areas under user registration/ setting.
DATA		Use it to clear the tel registration data* and user data. *One-touch dial, speed dial, and group dial numbers.
USER DATA		Use it to clear user data. SSSW and TEL registration data are not cleared.
SERVICE SW		Use it to clear the settings under SSSW. The user data is not cleared.
SERVICE DATA		Use it to clear the counters (numerator), date, and start data form the system dump list.
REPORT	ACTIVITY	Use it to clear the contents of the communications control report.
	JAM	not used.
	ERR	not used.
	ALARM	not used.
COUNTER		Use it clear the counter data.
CARD		not used.
ERR		not used.
ALL		Use it to clear all settings/registration data excluding the counter readings (denominator, numerator) from the system dump list and #5.

15.2.15 ROM Indication

0006-3130

The following is a list of the items/particulars for ROM indication mode:

T-15-41

Item	Description
MAIN	Use it to indicate the version of the ROM on the image processor PCB.
MAIN2	Use it to indicate the version of the CPU on the image processor PCB.
ECONT	Use it to indicate the version of the ROM on the DC controller PCB.
PDL	Use it to indicate the version of the ROM on the printer controller PCB.

15.2.16 Resetting the Contact Sensor Position

0006-3150

Not used.

15.2.17 Service Mode Default Setting

0006-6917

T-15-42

TYPE	EUROPE	U.K.	SWEDEN	SWISS	AUSTRIA	DENMARK	NORWAY
#1 SSSW							
SW01	00010000	00010000	00010000	00010000	00010000	00010000	00010000
SW02	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW03	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW04	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW05	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW06	10000000	10000000	10000000	10000000	10000000	10000000	10000000

TYPE	EUROPE	U.K.	SWEDEN	SWISS	AUSTRIA	DENMARK	NORWAY
SW07	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW08	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW09	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW10	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW11	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW12	00000010	00000010	00000010	00000010	00000010	00000010	00000010
SW13	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW14	00000010	00000010	00000010	00000010	00000010	00000010	00000010
SW15	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW16	00000011	00000011	00000011	00000011	00000011	00000011	00000011
SW17	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW18	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW19	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW20	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW21	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW22	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW23	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW24	00000000	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	EUROPE	U.K.	SWEDEN	SWISS	AUSTRIA	DENMARK	NORWAY
SW25	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW26	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW27	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW28	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW29	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW30	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW33	00000000	00000000	00000000	00000000	00000000	00000000	00000000
#2 MENU							
05:	OFF	OFF	OFF	OFF	OFF	OFF	OFF
06:	DIAL	DIAL	DIAL	DIAL	DIAL	DIAL	DIAL
07:	10	10	10	10	10	10	10
08:	3429	3429	3429	3429	3429	3429	3429
09:	33.6	33.6	33.6	33.6	33.6	33.6	33.6
10:	25Hz	25Hz	25Hz	25Hz	25Hz	25Hz	25Hz

T-15-43

TYPE	HOLLAND	BELGUIM	AUSTRALIA	FINLAND	N.Z.	ITALY	SPAIN
#1 SSSW							
SW01	00010000	00010000	00010000	00010000	00010000	00010000	00010000
SW02	00000000	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	HOLLAND	BELGUIM	AUSTRALIA	FINLAND	N.Z.	ITALY	SPAIN
SW03	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW04	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW05	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW06	10000000	10000000	10000000	10000000	10000000	10000000	10000000
SW07	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW08	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW09	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW10	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW11	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW12	00000010	00000010	00000010	00000010	00000010	00000010	00000010
SW13	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW14	00000010	00000010	00000010	00000010	00000010	00000010	00000010
SW15	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW16	00000011	00000011	00000011	00000011	00000011	00000011	00000011
SW17	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW18	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW19	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW20	00000000	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	HOLLAND	BELGUIM	AUSTRALIA	FINLAND	N.Z.	ITALY	SPAIN
SW21	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW22	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW23	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW24	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW25	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW26	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW27	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW28	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW29	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW30	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW33	00000000	00000000	00000000	00000000	00000000	00000000	00000000
#2 MENU							
05:	OFF	OFF	OFF	OFF	OFF	OFF	OFF
06:	DIAL	DIAL	DIAL	DIAL	DIAL	DIAL	DIAL
07:	10	10	10	10	10	10	10
08:	3429	3429	3429	3429	3429	3429	3429
09:	33.6	33.6	33.6	33.6	33.6	33.6	33.6
10:	25Hz	25Hz	25Hz	25Hz	25Hz	25Hz	25Hz

T-15-44

TYPE	PORTUGAL	IRELAND	HONG KONG	MALAYSIA	HUNGARY	SAF	KOREA
#1 SSSW							
SW01	00010000	00010000	00010000	00010000	00010000	00010000	00010000
SW02	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW03	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW04	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW05	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW06	10000000	10000000	10000000	10000000	10000000	10000000	10000000
SW07	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW08	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW09	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW10	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW11	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW12	00000010	00000010	00000010	00000010	00000010	00000010	00000010
SW13	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW14	00000010	00000010	00000010	00000010	00000010	00000010	00000010
SW15	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW16	00000011	00000011	00000011	00000011	00000011	00000011	00000011

TYPE	PORTUGAL	IRELAND	HONG KONG	MALAYSIA	HUNGARY	SAF	KOREA
SW17	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW18	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW19	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW20	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW21	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW22	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW23	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW24	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW25	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW26	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW27	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW28	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW29	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW30	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW33	00000000	00000000	00000000	00000000	00000000	00000000	00000000
#2 MENU							
05:	OFF	OFF	OFF	OFF	OFF	OFF	OFF
06:	DIAL	DIAL	DIAL	DIAL	DIAL	DIAL	DIAL

TYPE	PORTUGAL	IRELAND	HONG KONG	MALAYSIA	HUNGARY	SAF	KOREA
07:	10	10	10	10	10	10	10
08:	3429	3429	3429	3429	3429	3429	3429
09:	33.6	33.6	33.6	33.6	33.6	33.6	33.6
10:	25Hz	25Hz	25Hz	25Hz	25Hz	25Hz	25Hz

T-15-45

TYPE	CHINA	GERMAN	FRANCE	SINGAPORE	CZECH	SLOVENIA	ASIA
#1 SSSW							
SW01	00010000	00010000	00010000	00010000	00010000	00010000	00010000
SW02	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW03	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW04	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW05	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW06	10000000	10000000	10000000	10000000	10000000	10000000	10000000
SW07	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW08	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW09	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW10	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW11	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW12	00000010	00000010	00000010	00000010	00000010	00000010	00000010

TYPE	CHINA	GERMAN	FRANCE	SINGAPORE	CZECH	SLOVENIA	ASIA
SW13	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW14	00000010	00000010	00000010	00000010	00000010	00000010	00000010
SW15	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW16	00000011	00000011	00000011	00000011	00000011	00000011	00000011
SW17	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW18	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW19	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW20	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW21	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW22	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW23	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW24	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW25	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW26	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW27	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW28	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW29	00000000	00000000	00000000	00000000	00000000	00000000	00000000
SW30	00000000	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	CHINA	GERMAN	FRANCE	SINGAPORE	CZECH	SLOVENIA	ASIA
SW33	00000000	00000000	00000000	00000000	00000000	00000000	00000000
#2 MENU							
05:	OFF	OFF	OFF	OFF	OFF	OFF	OFF
06:	DIAL	DIAL	DIAL	DIAL	DIAL	DIAL	DIAL
07:	13	10	10	10	10	10	10
08:	3429	3429	3429	3429	3429	3429	3429
09:	33.6	33.6	33.6	33.6	33.6	33.6	33.6
10:	25Hz	25Hz	25Hz	25Hz	25Hz	25Hz	25Hz

T-15-46

TYPE	POLAND	EUROPE2	TAIWAN	STANDARD	USA
#1 SSSW					
SW01	00010000	00010000	not used	not used	00010000
SW02	00000000	00000000	not used	not used	00000000
SW03	00000000	00000000	not used	not used	00000000
SW04	00000000	00000000	not used	not used	00000000
SW05	00000000	00000000	not used	not used	00000000
SW06	10000000	10000000	not used	not used	10000000
SW07	00000000	00000000	not used	not used	00000000
SW08	00000000	00000000	not used	not used	00000000
SW09	00000000	00000000	not used	not used	00000000
SW10	00000000	00000000	not used	not used	00000000
SW11	00000000	00000000	not used	not used	00000000
SW12	00000010	00000010	not used	not used	00000010
SW13	00000000	00000000	not used	not used	00000000
SW14	00000010	00000010	not used	not used	00000010
SW15	00000000	00000000	not used	not used	00000000
SW16	00000011	00000011	not used	not used	00000011

TYPE	POLAND	EUROPE2	TAIWAN	STANDARD	USA
SW17	00000000	00000000	not used	not used	00000000
SW18	00000000	00000000	not used	not used	00000000
SW19	00000000	00000000	not used	not used	00000000
SW20	00000000	00000000	not used	not used	00000000
SW21	00000000	00000000	not used	not used	00000000
SW22	00000000	00000000	not used	not used	00000000
SW23	00000000	00000000	not used	not used	00000000
SW24	00000000	00000000	not used	not used	00000000
SW25	00000000	00000000	not used	not used	00000000
SW26	00000000	00000000	not used	not used	00000000
SW27	00000000	00000000	not used	not used	00000000
SW28	00000000	00000000	not used	not used	00000000
SW29	00000000	00000000	not used	not used	00000000
SW30	00000000	00000000	not used	not used	00000000
SW33	00000000	00000000	not used	not used	00000000
#2 MENU					
05:	OFF	OFF	not used	not used	OFF
06:	DIAL	DIAL	not used	not used	DIAL
07:	10	10	not used	not used	10
08:	3429	3429	not used	not used	3429
09:	33.6	33.6	not used	not used	33.6
10:	25Hz	25Hz	not used	not used	25Hz

T-15-47

TYPE	EUROPE	U.K.	SWEDEN	SWISS	AUSTRIA	DENMARK	NORWAY
#3 NUMERIC Param							
02:	10	10	10	10	10	10	10

TYPE	EUROPE	U.K.	SWEDEN	SWISS	AUSTRIA	DENMARK	NORWAY
03:	15	15	15	15	15	15	15
04:	12	12	12	12	12	12	12
05:	4	4	4	4	4	4	4
06:	4	1	4	4	4	4	4
09:	6	6	6	6	6	6	6
10:	5500	5500	5500	5500	5500	5500	5500
11:	3500	3500	3500	3500	3500	3500	3500
13:	1300	1300	1300	1300	1300	1300	1300
15:	120	120	120	120	120	120	120
16:	2	2	2	2	2	2	2
17:	100	100	100	100	100	100	100
18:	0	0	0	0	0	0	0
19:	400	400	400	400	400	400	400
20:	100	40	100	100	100	100	30
21:	0	20	0	0	0	0	30
22:	400	200	400	400	400	400	400
24:	10	10	10	10	10	10	10
25:	60	60	60	60	60	60	60
27:	0	0	0	0	0	0	0
28:	3	3	3	3	3	3	3
56:	101	101	101	101	101	101	101
57:	201	201	201	201	201	201	201
58:	0	0	0	0	0	0	0
59:	0	0	0	0	0	0	0
60:	0	0	0	0	0	0	0
61:	0	0	0	0	0	0	0

#5 TYPE	EUROPE	U.K.	SWEDEN	SWISS	AUSTRIA	DENMARK	NORWAY

T-15-48

TYPE	HOLLAND	BELGUIM	AUSTRALIA	FINLAND	N.Z.	ITALY	SPAIN
#3 NUMERIC Param							
02:	10	10	10	10	10	10	10
03:	15	15	15	15	15	15	15
04:	12	12	12	12	12	12	12
05:	4	4	4	4	4	4	15
06:	4	4	4	4	4	4	3
09:	6	6	6	6	6	6	6
10:	5500	5500	5500	5500	5500	5500	5500
11:	3500	3500	3500	3500	3500	3500	3500
13:	1300	1300	1300	1300	1300	1300	1300
15:	120	120	120	120	120	120	120
16:	2	2	2	2	2	2	2
17:	100	100	100	100	100	100	100
18:	0	0	0	0	0	0	0
19:	400	400	400	400	400	400	400
20:	100	100	100	100	100	100	100
21:	0	0	0	0	0	0	0
22:	400	300	400	400	400	400	400
24:	10	10	10	12	10	10	10
25:	60	60	60	60	60	60	60
27:	0	0	0	0	0	0	0
28:	3	3	3	3	3	3	3
56:	101	101	101	101	101	101	101
57:	201	201	201	201	201	201	201
58:	0	0	0	0	0	0	0
59:	0	0	0	0	0	0	0
60:	0	0	0	0	0	0	0
61:	0	0	0	0	0	0	0

TYPE	HOLLAND	BELGUIM	AUSTRALIA	FINLAND	N.Z.	ITALY	SPAIN
#5 TYPE	HOLLAND	BELGUIM	AUSTRALIA	FINLAND	N.Z.	ITALY	SPAIN

T-15-49

TYPE	PORTUGAL	IRELAND	HONG KONG	MALAYSIA	HUNGARY	SAF	KOREA
#3 NUMERIC Param							
02:	10	10	10	10	10	10	10
03:	15	15	15	15	15	15	15
04:	12	12	12	12	12	12	12
05:	4	4	4	4	4	4	4
06:	4	4	1	4	4	4	4
09:	6	6	6	6	6	6	6
10:	5500	5500	5500	5500	5500	3500	5500
11:	3500	3500	3500	3500	3500	3500	3500
13:	1300	1300	1300	1300	1300	1300	1310
15:	120	120	120	120	120	120	120
16:	2	2	2	2	2	2	2
17:	100	100	40	100	100	100	100
18:	0	0	20	0	0	0	0
19:	400	400	200	400	400	400	400
20:	100	100	100	100	100	100	100
21:	0	0	0	0	0	0	0
22:	400	400	400	400	400	400	400
24:	10	10	10	10	10	10	10
25:	60	60	60	60	60	60	60
27:	0	0	0	0	0	0	0
28:	3	3	3	3	3	3	3

TYPE	PORTUGAL	IRELAND	HONG KONG	MALAYSIA	HUNGARY	SAF	KOREA
56:	101	101	101	101	101	101	101
57:	201	201	201	201	201	201	201
58:	0	0	0	0	0	0	0
59:	0	0	0	0	0	0	0
60:	0	0	0	0	0	0	0
61:	0	0	0	0	0	0	0

#5 TYPE	PORTUGAL	IRELAND	HONG KONG	MALAYSIA	HUNGARY	SAF	KOREA

T-15-50

TYPE	CHINA	GERMAN	FRANCE	SINGAPORE	CZECH	SLOVENIA	ASIA
#3 NUMERIC Param							
02:	10	8	10	10	10	10	10
03:	15	15	15	15	15	15	15
04:	12	6	12	12	12	12	12
05:	4	4	4	4	4	4	4
06:	4	4	4	4	4	4	4
09:	6	6	6	6	6	6	6
10:	4500	9000	5500	5500	5500	5500	5500
11:	3500	3500	3500	3500	3500	3500	3500
13:	1300	1300	1300	1300	1300	1300	1300
15:	120	120	120	120	120	120	120
16:	2	2	2	2	2	2	2
17:	100	100	100	100	100	100	100
18:	0	0	0	0	0	0	0
19:	400	400	400	400	400	400	400
20:	100	100	150	100	100	100	100

TYPE	CHINA	GERMAN	FRANCE	SINGAPORE	CZECH	SLOVENIA	ASIA
21:	0	0	0	0	0	0	0
22:	400	400	300	400	400	400	400
24:	10	10	10	10	10	10	10
25:	60	60	60	60	60	60	60
27:	0	0	0	0	0	0	0
28:	3	3	3	3	3	3	3
56:	101	101	101	101	101	101	101
57:	201	201	201	201	201	201	201
58:	0	0	0	0	0	0	0
59:	0	0	0	0	0	0	0
60:	0	0	0	0	0	0	0
61:	0	0	0	0	0	0	0

#5 TYPE	CHINA	GERMAN	FRANCE	SINGAPORE	CZECH	SLOVENIA	ASIA

T-15-51

TYPE	POLAND	EUROPE2	TAIWAN	STANDARD	USA
#3					
NUMERIC					
Param					
02:	10	10	not used	not used	10
03:	15	15	not used	not used	15
04:	12	12	not used	not used	12
05:	4	4	not used	not used	4
06:	4	4	not used	not used	4
09:	6	6	not used	not used	6
10:	5500	5500	not used	not used	5500
11:	3500	3500	not used	not used	3500
13:	1300	1300	not used	not used	1300
15:	120	120	not used	not used	120
16:	2	2	not used	not used	4

TYPE	POLAND	EUROPE2	TAIWAN	STANDARD	USA
17:	100	100	not used	not used	100
18:	0	0	not used	not used	0
19:	400	400	not used	not used	200
20:	100	100	not used	not used	100
21:	0	0	not used	not used	0
22:	400	400	not used	not used	200
24:	10	10	not used	not used	20
25:	60	60	not used	not used	60
27:	0	0	not used	not used	0
28:	3	3	not used	not used	3
56:	101	101	101	101	101
57:	201	201	201	201	201
58:	0	0	0	0	0
59:	0	0	0	0	0
60:	0	0	0	0	0
61:	0	0	0	0	0

#5 TYPE	POLAND	EUROPE2	TAIWAN	STANDARD	USA

15.2.18 Test Mode

0006-3199

When using test mode, be sure to execute items according to the menu indicated on the display. The menu items in test mode are grouped into 7 blocks.

1. D-RAM Test (1: D-RAM)
Use it to be sure that data is properly written to and read from the D-RAM.

2. CCD Test (2: CCD TEST)
Use it to execute auto adjustment (contact sensor LED intensity or original read position) or to initialize the CCD read position parameter.

3. PRINT Test (3: PRINT)
Use it to generate a test pattern for service.

4. MODEM NCU Test (4: MODEM NCU)
Use it to execute a relay operation test or modem DTMF and tonal signal transmission/reception tests.

5. AGING Test (5: AGING TEST)

Not used.

6. FACULTY Test (6: FACULTY TEST)

Use it to check the operation of microswitches, sensors, speakers, and ADF.

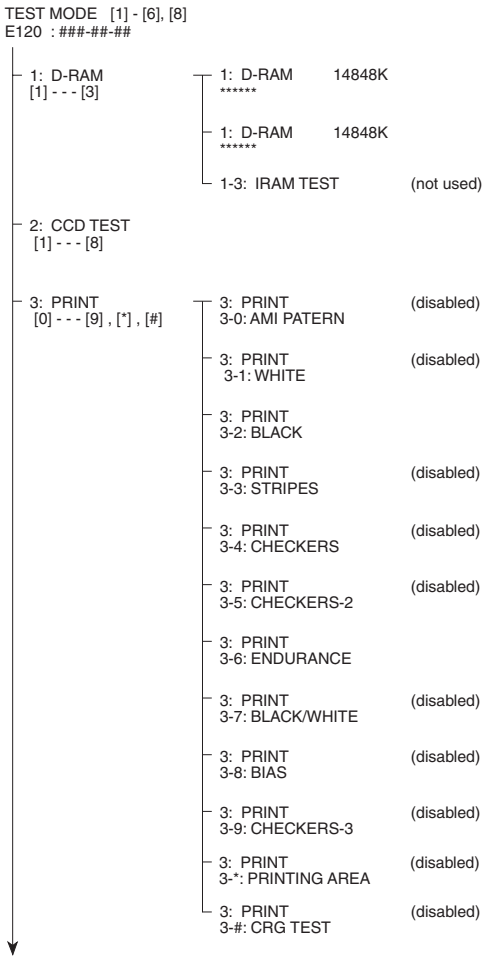
7. BOOK Test (8: BOOK TEST)

Use it to turn on the contact sensor or to initialize the book reading position parameter.

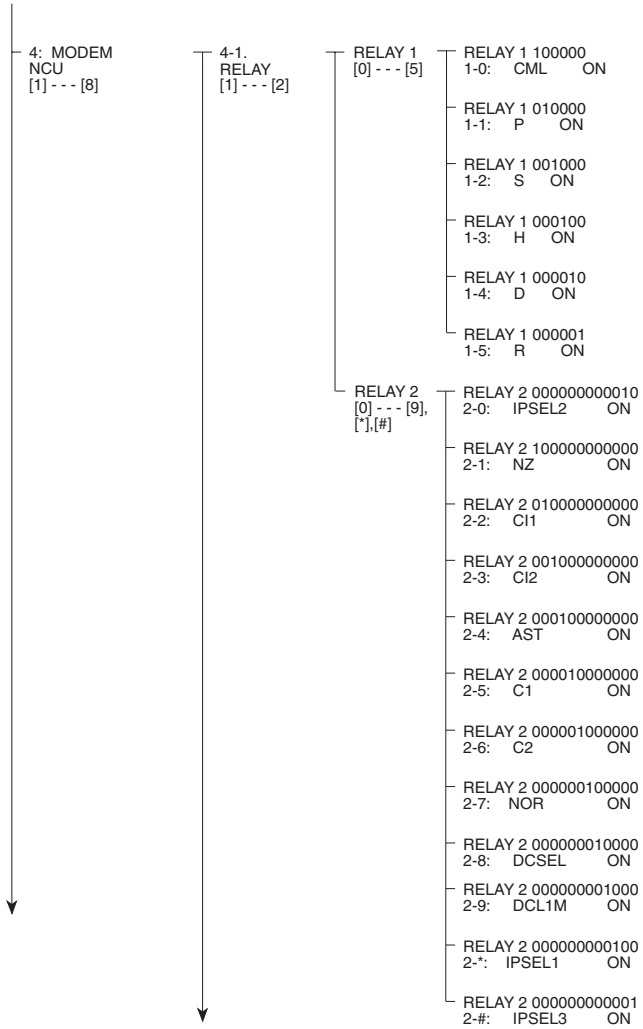
List of Test Mode Items

To use test mode, press the Additional Functions key and # key; then, select 'SERVICE MODE' and select 'TEST MODE' using the Left or Right Arrow key, and press the OK key.

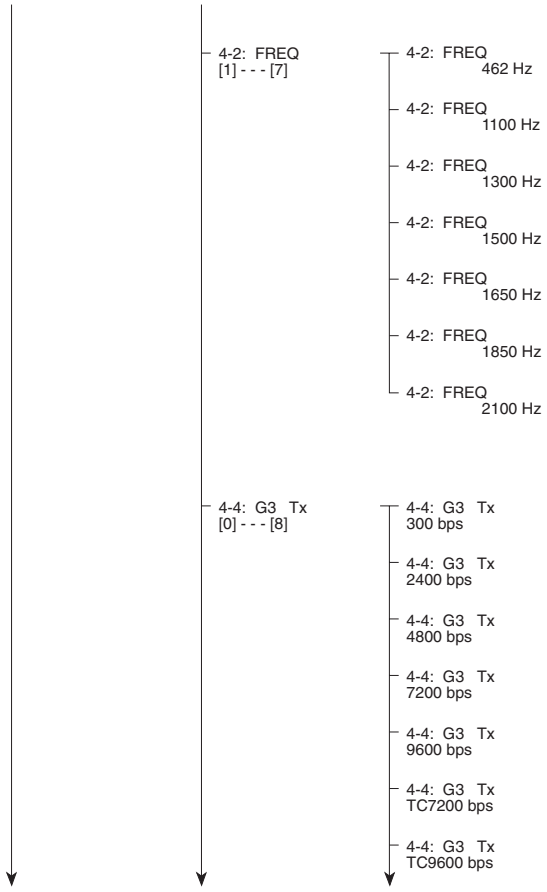
To end test mode, press the Stop key and then the Additional Functions key.


TEST MODE [1] - [6], [8]
E120 : ###-##-##
1: D-RAM [1] - - - [3]
1: D-RAM 14848K ******
1: D-RAM 14848K ******
1-3: IRAM TEST (not used)
2: CCD TEST [1] - - - [8]
3: PRINT [0] - - - [9] , [*] , [#]
3: PRINT 3-0: AMI PATERN (disabled)
3: PRINT 3-1: WHITE (disabled)
3: PRINT 3-2: BLACK
3: PRINT 3-3: STRIPES (disabled)
3: PRINT 3-4: CHECKERS (disabled)
3: PRINT 3-5: CHECKERS-2 (disabled)
3: PRINT 3-6: ENDURANCE
3: PRINT 3-7: BLACK/WHITE (disabled)
3: PRINT 3-8: BIAS (disabled)
3: PRINT 3-9: CHECKERS-3 (disabled)
3: PRINT 3-*: PRINTING AREA (disabled)
3: PRINT 3-#: CRG TEST (disabled)

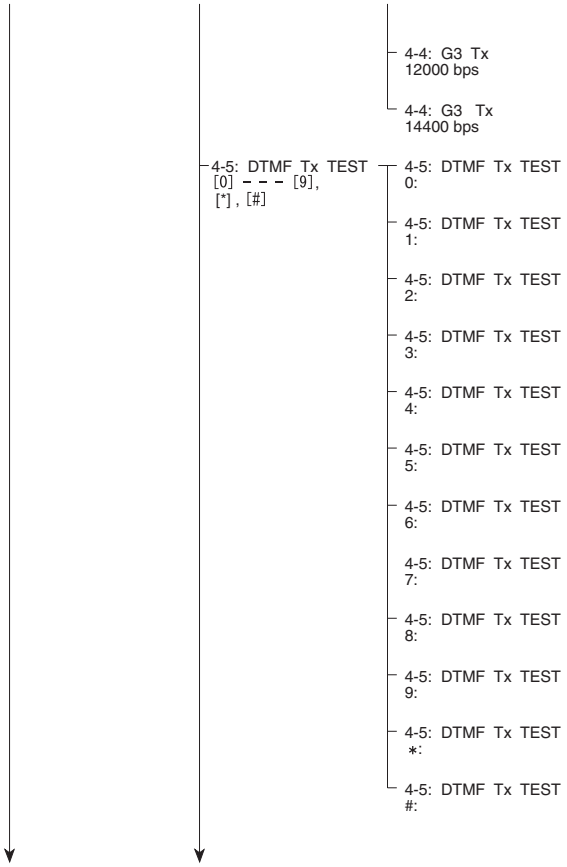
F-15-10


4: MODEM NCU [1] - - - [8]
4-1. RELAY [1] - - - [2]
RELAY 1 [0] - - - [5]
RELAY 1 100000 1-0: CML ON
RELAY 1 010000 1-1: P ON
RELAY 1 001000 1-2: S ON
RELAY 1 000100 1-3: H ON
RELAY 1 000010 1-4: D ON
RELAY 1 000001 1-5: R ON
RELAY 2 [0] - - - [9], [*],[#]
RELAY 2 000000000010 2-0: IPSEL2 ON
RELAY 2 100000000000 2-1: NZ ON
RELAY 2 010000000000 2-2: CI1 ON
RELAY 2 001000000000 2-3: CI2 ON
RELAY 2 000100000000 2-4: AST ON
RELAY 2 000010000000 2-5: C1 ON
RELAY 2 000001000000 2-6: C2 ON
RELAY 2 000000100000 2-7: NOR ON
RELAY 2 000000010000 2-8: DCSEL ON
RELAY 2 000000001000 2-9: DCL1M ON
RELAY 2 000000000100 2-*: IPSEL1 ON
RELAY 2 000000000001 2-#: IPSEL3 ON

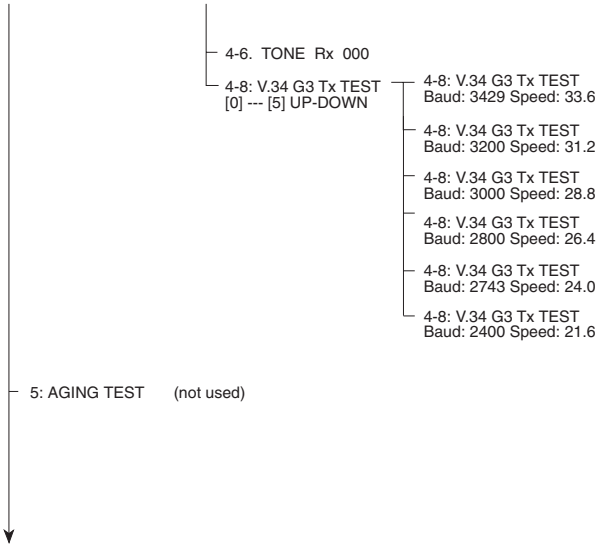
F-15-11


4-2: FREQ
[1] - - - [7]
4-2: FREQ
462 Hz
4-2: FREQ
1100 Hz
4-2: FREQ
1300 Hz
4-2: FREQ
1500 Hz
4-2: FREQ
1650 Hz
4-2: FREQ
1850 Hz
4-2: FREQ
2100 Hz
4-4: G3 Tx
[0] - - - [8]
4-4: G3 Tx
300 bps
4-4: G3 Tx
2400 bps
4-4: G3 Tx
4800 bps
4-4: G3 Tx
7200 bps
4-4: G3 Tx
9600 bps
4-4: G3 Tx
TC7200 bps
4-4: G3 Tx
TC9600 bps

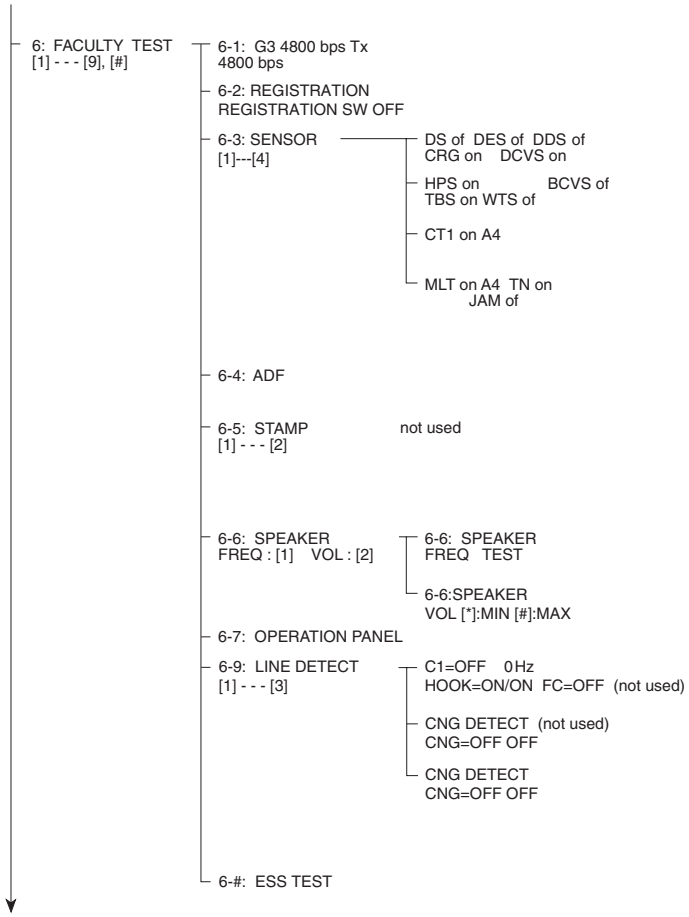
F-15-12


4-4: G3 Tx
12000 bps
4-4: G3 Tx
14400 bps
4-5: DTMF Tx TEST
[0] – – – [9],
[*], [#]
4-5: DTMF Tx TEST
0:
4-5: DTMF Tx TEST
1:
4-5: DTMF Tx TEST
2:
4-5: DTMF Tx TEST
3:
4-5: DTMF Tx TEST
4:
4-5: DTMF Tx TEST
5:
4-5: DTMF Tx TEST
6:
4-5: DTMF Tx TEST
7:
4-5: DTMF Tx TEST
8:
4-5: DTMF Tx TEST
9:
4-5: DTMF Tx TEST
*:
4-5: DTMF Tx TEST
#:

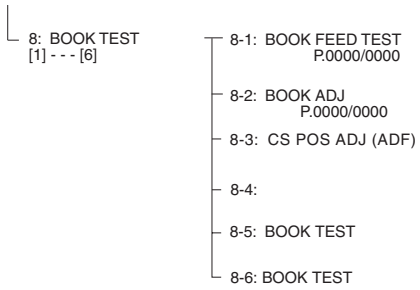
F-15-13


4-6. TONE Rx 000
4-8: V.34 G3 Tx TEST
[0] --- [5] UP-DOWN
4-8: V.34 G3 Tx TEST
Baud: 3429 Speed: 33.6
4-8: V.34 G3 Tx TEST
Baud: 3200 Speed: 31.2
4-8: V.34 G3 Tx TEST
Baud: 3000 Speed: 28.8
4-8: V.34 G3 Tx TEST
Baud: 2800 Speed: 26.4
4-8: V.34 G3 Tx TEST
Baud: 2743 Speed: 24.0
4-8: V.34 G3 Tx TEST
Baud: 2400 Speed: 21.6
5: AGING TEST (not used)

F-15-14



F-15-15



F-15-16

D-RAM Test (1: D-RAM)

Press '1' on the keypad on the Test Mode menu to select D-RAM (SDRAM) Test mode.

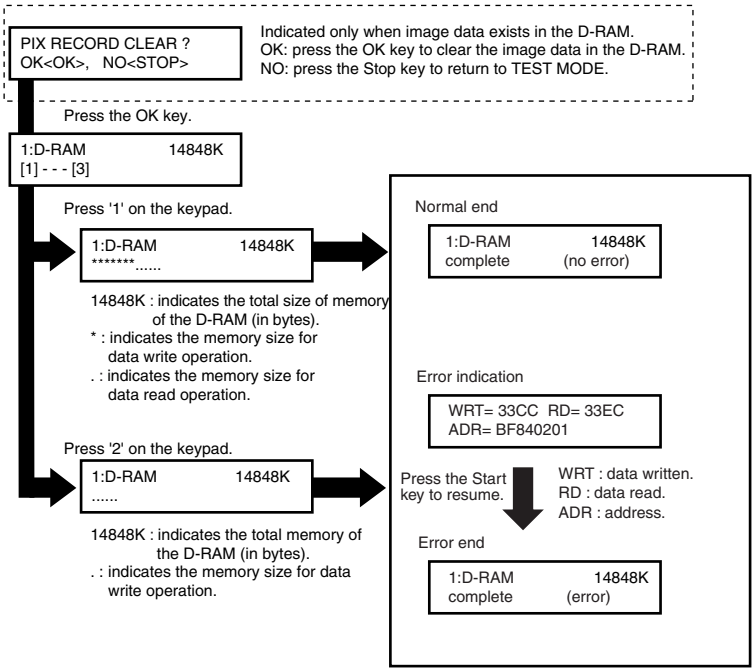
Thereafter, press '1' or '2' on the keypad to execute the following:

'1' on Keypad

Press it to execute a data write/read check for the entire area of the D-RAM (SDRAM). If an error occurs during the check, the machine will stop the check and indicate an error on the LCD.

'2' on Keypad

Press it to execute a data read check for the entire area of the D-RAM (SDRAM). If an error occurs during the check, the machine will stop the check and indicate an error on the LCD.


PIX RECORD CLEAR ?
OK<OK>, NO<STOP>
Indicated only when image data exists in the D-RAM.
OK: press the OK key to clear the image data in the D-RAM.
NO: press the Stop key to return to TEST MODE.
Press the OK key.
1:D-RAM 14848K
[1] - - - [3]
Press '1' on the keypad.
1:D-RAM 14848K
*******.....
14848K : indicates the total size of memory of the D-RAM (in bytes).
* : indicates the memory size for data write operation.
. : indicates the memory size for data read operation.
Press '2' on the keypad.
1:D-RAM 14848K
.....
14848K : indicates the total memory of the D-RAM (in bytes).
. : indicates the memory size for data write operation.
Normal end
1:D-RAM 14848K
complete (no error)
Error indication
WRT= 33CC RD= 33EC
ADR= BF840201
Press the Start key to resume.
WRT : data written.
RD : data read.
ADR : address.
Error end
1:D-RAM 14848K
complete (error)

F-15-17

CCD Test (2: CCD TEST)

A press on '2' on the keypad on the Test Mode menu will select CCD Test mode. Press '3', '7', or '8' on the keypad to execute the following:

'3' on Keypad

Press it to execute original read position auto adjustment (if equipped with ADF) so as to adjust the contact sensor position used for reading with the ADF in use automatically. (See 1.3.4.2 of Chapter 7.)

'7' on Keypad

Press it to initialize the contact sensor parameters, including those that are not initialized by 'all clear' in service mode.

'8' on Keypad

Press it to execute contact sensor LED intensity auto adjustment so that the contact sensor output correction is made and contact sensor parameters are automatically set. (See 1.2.4.1 of Chapter 7.)

PRINT Test (3: PRINT)

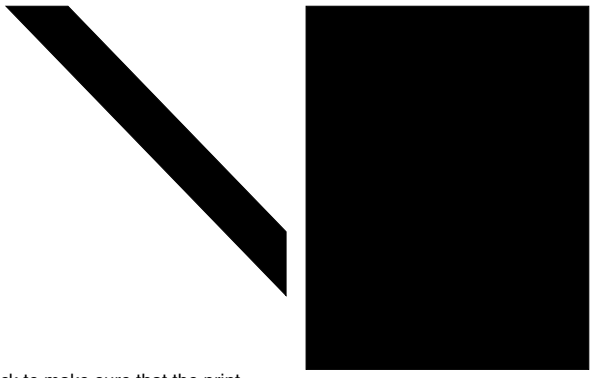
Press '3' on the keypad from the Test Mode menu to select Print Test mode. A press on '2' or '6' on the keypad during the test will generate any of the following 2 types of test patterns.

Do not use the others, as they are especially designed for use by the factory and R&D.

'2' on Keypad

3-2: Press it to generate BLACK, which is a solid black print.

'6' on Keypad
3-6: Press it to generate ENDURANCE, which is a black band.
To stop test printing, press the Stop key.


Check to make sure that the print pattern is free of contraction, elongation, dirt, or black lines.
Check it to make sure that the print pattern is free of white line or uneven density.

F-15-18

MODEM NCU Test (4: MODEM NCU)
Use it to execute a transmission test for MODEM NCU. In a modem test, you can make sure that the signals from the modem are transmitted normally by listening to the sound of signals from the speaker.
You can also use it to make sure that the received tonal signal and DTMF signal are correctly detected by the modem.
To end the test, press the Stop key.

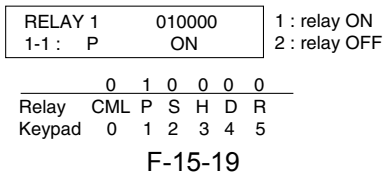
T-15-52

Type	Description
Relay test	Use it to turn on/off a selected relay to execute a switch-over test.
G3 signal transmission test	Use it to generate the G3 signal coming from the modem using the telephone line terminal and the speaker.
DTMF signal reception test	Use it to generate the DTMF signal coming from the modem using the telephone line terminal and the speaker.
Tonal signal reception test	Use it to monitor a specific frequency and the DTMF signal received from the telephone line terminal by causing them to be indicated on the LCD (i.e., the presence/ absence as detected). The reception signal is generated by the speaker.

Type	Description
V.34 G3 signal transmission test	The modem sends V.34 G3 signals from the modular jack and speaker.

Relay Test

Press '1' on the keypad on the Modem NCU Test menu to select relay test mode. Use the keypad to operate the various relays of the NCU.



F-15-19

Frequency Test

A press on '2' on the keypad from the MODEM NCU Test menu selects the frequency test. In this test, signals of the following frequencies from the modem are transmitted using the telephone line terminal and the speaker. To select a different frequency, use the keypad.

T-15-53

Keypad	Frequency
1	462 Hz
2	1100 Hz
3	1300 Hz
4	1500 Hz
5	1650 Hz
6	1850 Hz
7	2100 Hz

MEMO:

The frequency and the output level of individual frequencies are in keeping with the output level set in service mode.

G3 Signal Transmission Test

A press on '4' on the keypad from the MODEM NCU Test menu selects the G3 signal transmission test. In this test, the following G3 signals from the modem are transmitted using the telephone line terminal and the speaker. To select a different transmission speed, use the keypad.

T-15-54

Keypad	Frequency
0	300 bps
1	2400 bps
2	4800 bps
3	7200 bps
4	9600 bps
5	TC7200 bps
6	TC9600 bps
7	12000 bps
8	14400 bps

MEMO:

The output level of individual signals is in keeping with the setting made in service mode.

DTMF Signal Transmission Test

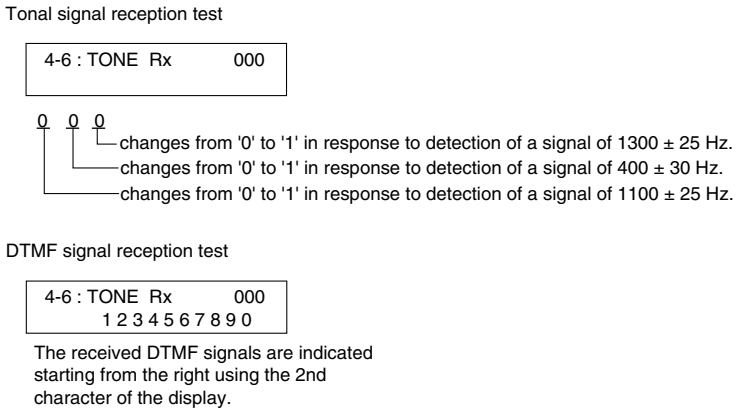
A press on '5' on the MODEM NCU Test menu selects the DTMF signal transmission test. In the test, the following DTMF signals from the modem are transmitted using the telephone line terminal and the speaker. The number pressed on the keypad selects a specific DTMF signal.

MEMO:

The output level of individual signals is in keeping with the setting made in service mode.

Tonal/DTMF Signal Reception Test

A press on '6' on the keypad from the MODEM NCU Test menu selects the tonal signal/DTMF signal reception 0 test. In this signal, the tonal signal/DTMF signal received from the telephone line terminal can be checked to find out if it was detected by the modem.


Tonal signal reception test
4-6 : TONE Rx 000
0 0 0
changes from '0' to '1' in response to detection of a signal of 1300 ± 25 Hz.
changes from '0' to '1' in response to detection of a signal of 400 ± 30 Hz.
changes from '0' to '1' in response to detection of a signal of 1100 ± 25 Hz.
DTMF signal reception test
4-6 : TONE Rx 000
1 2 3 4 5 6 7 8 9 0
The received DTMF signals are indicated starting from the right using the 2nd character of the display.

F-15-20

V.34 G3 signal transmission test

The V.34 G3 signal transmission test menu is selected by pressing the 8 key from the MODEM NCU test menu. The V.34 G3 signals below are sent from the modem using the modular jack and the speaker by pressing the start key. The Baud rate can be changed with the numeric keys, and the Speed can be changed with the cursor key ◄► .

T-15-55

Numeric key	Baud rate
0	3429 baud
1	3200 baud
2	3000 baud
3	2800 baud
4	2743 baud
5	2400 baud

T-15-56

Cursor key	Speed
▶	2400 bps
	4800 bps
	7200 bps
	9600 bps
	12000 pbs
	14400 bps

Cursor key	Speed
	16800 bps
	19200 bps
	21600 bps
	24000 bps
	26400 bps
	28800 pbs
	31200 bps
◀	33600 bps

AGING Test (5: AGING TEST)

Not used.

FACULTY (function) Test (6: FACULTY TEST)

A press on '6' on the keypad from the TEST MODE menu selects the FACULTY test. A press on the keypad (1 through 7, 9, #) during the test will bring up the following menu:

T-15-57

Keypad	Item	Description
1	G3 Signal Transmission Test	Transmits a G3 signal at 4800 bps to the telephone line and the speaker.
2	not used	
3	Sensor Test	Executes an operation test on a specific sensor.
4	ADF Test	Executes an operation test on the ADF.
5	not used	
6	Speaker Test	Executes an operation test on the speaker.
7	Control Panel Test	Executes an operation test on the LCD/LED/control panel keys.
9	Live Connection Reception Test	Executes an operation test on the signal sensor on the NCU board and the frequency counter.

Keypad	Item	Description
#	ESS Test	Executes an operation test on the ESS function.

G3 Signal Transmission Test (6-1: G3 4800 bps Tx)

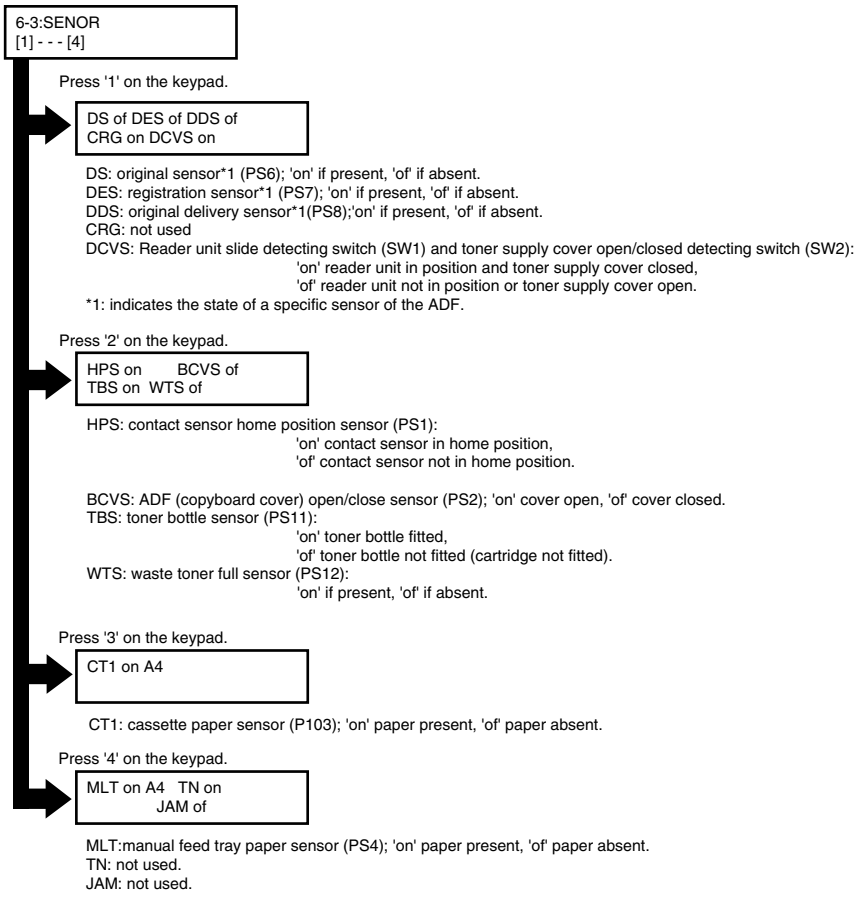
A press on '1' on the keypad on the FACULTY TEST menu selects the G3 transmission test. In this test, a G3 signal is transmitted using the telephone line terminal and the speaker at 4800 bps.

Sensor Test (6-3: SENSOR)

This mode is used to check the state of a specific sensor of the machine on the LCD. A press on '3' on the keypad from the FACULTY TEST menu selects the sensor test. The LCD indication changes as the sensor goes ON and OFF.

⚠

The paper leading edge sensor (PS102), LGL paper sensor (PS101), and delivery sensor (PS3) cannot be checked by running a sensor test.


6-3:SENOR
[1] - - - [4]
Press '1' on the keypad.
DS of DES of DDS of
CRG on DCVS on
DS: original sensor*1 (PS6); 'on' if present, 'of' if absent.
DES: registration sensor*1 (PS7); 'on' if present, 'of' if absent.
DDS: original delivery sensor*1(PS8);'on' if present, 'of' if absent.
CRG: not used
DCVS: Reader unit slide detecting switch (SW1) and toner supply cover open/closed detecting switch (SW2):
'on' reader unit in position and toner supply cover closed,
'of' reader unit not in position or toner supply cover open.
*1: indicates the state of a specific sensor of the ADF.
Press '2' on the keypad.
HPS on BCVS of
TBS on WTS of
HPS: contact sensor home position sensor (PS1):
'on' contact sensor in home position,
'of' contact sensor not in home position.
BCVS: ADF (copyboard cover) open/close sensor (PS2); 'on' cover open, 'of' cover closed.
TBS: toner bottle sensor (PS11):
'on' toner bottle fitted,
'of' toner bottle not fitted (cartridge not fitted).
WTS: waste toner full sensor (PS12):
'on' if present, 'of' if absent.
Press '3' on the keypad.
CT1 on A4
CT1: cassette paper sensor (P103); 'on' paper present, 'of' paper absent.
Press '4' on the keypad.
MLT on A4 TN on
JAM of
MLT:manual feed tray paper sensor (PS4); 'on' paper present, 'of' paper absent.
TN: not used.
JAM: not used.

F-15-21

ADF Test (6-4: ADF)

Use it to check the operation of the ADF.

Press '4' on the keypad while the FACULTY TEST menu is indicated to select ADF test.

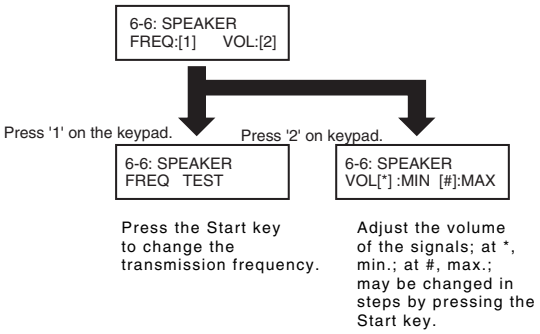
Place an original in the original placement area, and press the Start key so that the original will be moved at a specific speed.

Select this item, press 10 originals in the ADF, and press '8' on the keypad to execute registration arch auto adjustment (only if equipped with ADF functions). (See 1.3.4 of Chapter 7.)

Speaker test (6-6: SPEAKER)

Use it to check the operation of the speaker.

Press '6' on the keyboard while the FACULTY TEST menu is indicated to select speaker test. In the test, tonal signal sounds of between 200 Hz to 5 kHz at 100-Hz intervals are generated white changing the volume. Check to see if the speaker generates these signals.


6-6: SPEAKER
FREQ:[1] VOL:[2]
Press '1' on the keypad.
Press '2' on keypad.
6-6: SPEAKER
FREQ TEST
6-6: SPEAKER
VOL[*] :MIN [#]:MAX
Press the Start key to change the transmission frequency.
Adjust the volume of the signals; at *, min.; at #, max.; may be changed in steps by pressing the Start key.

F-15-22

Control Panel Test (6-7: OPERATION PANEL)

This test is used to check the operation of the control panel.

A press on '7' on the keypad from the control panel selects the OPERATION PANEL Test menu, enabling the following tests:

- LCD Test

  A press on the Start key under OPERATION PANEL test will start LCD test, in which the screen will be filled with the character H; another press will cause the screen to turn totally black.

- LED Lamp Test

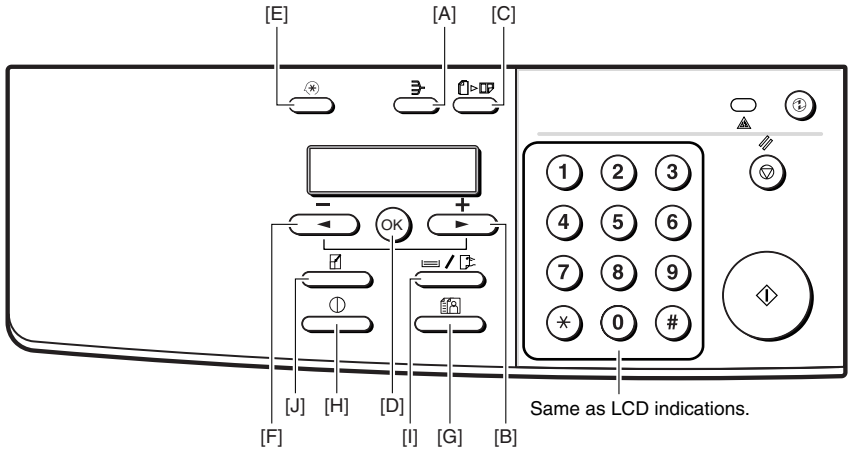
  A press on the Start key after the LCD test selects the LED lamp test, turning all lamps in the control panel to go ON.

- Control Key Test

  A press on the Start key after the LED lamp selects control key test 1. Press the key indicated on the LCD; if it goes out, the operation is normal.

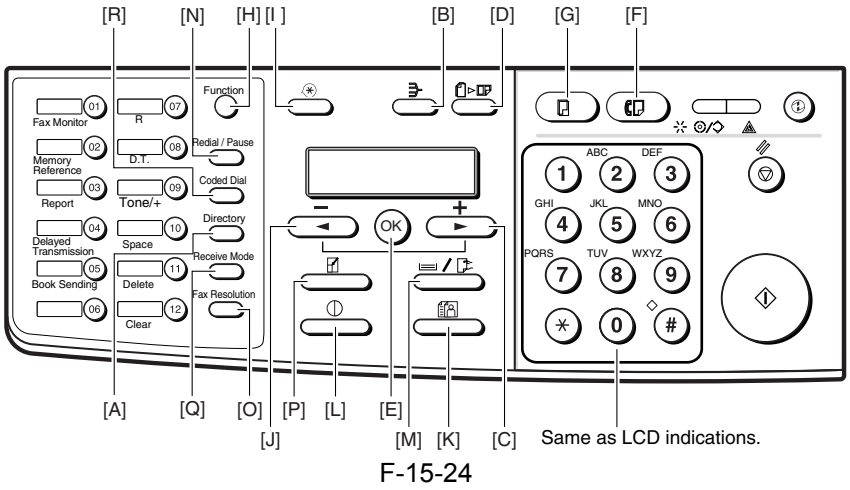
  When all characters have gone out, control key test 2 (if equipped with fax functions) is started. As in the case of operation key test 1, press the key indicated on the LCD; the operation is correct if it goes out.

Key Correspondence for Control Key Test 1 (if not equipped with fax functions)



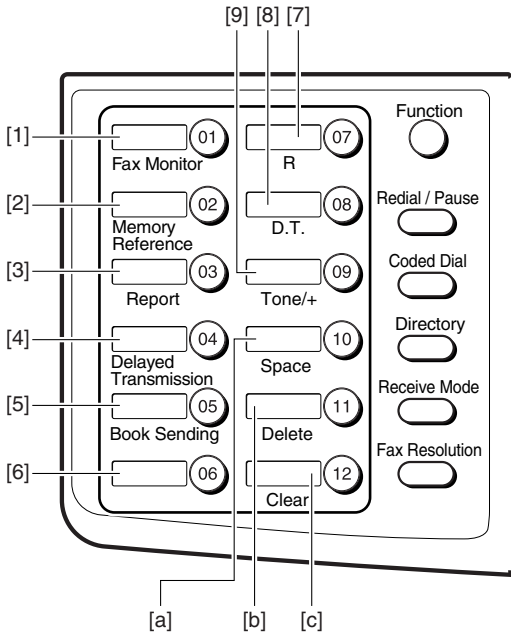
F-15-23

Key Correspondence for Control Key Test 1 (if equipped with fax functions)



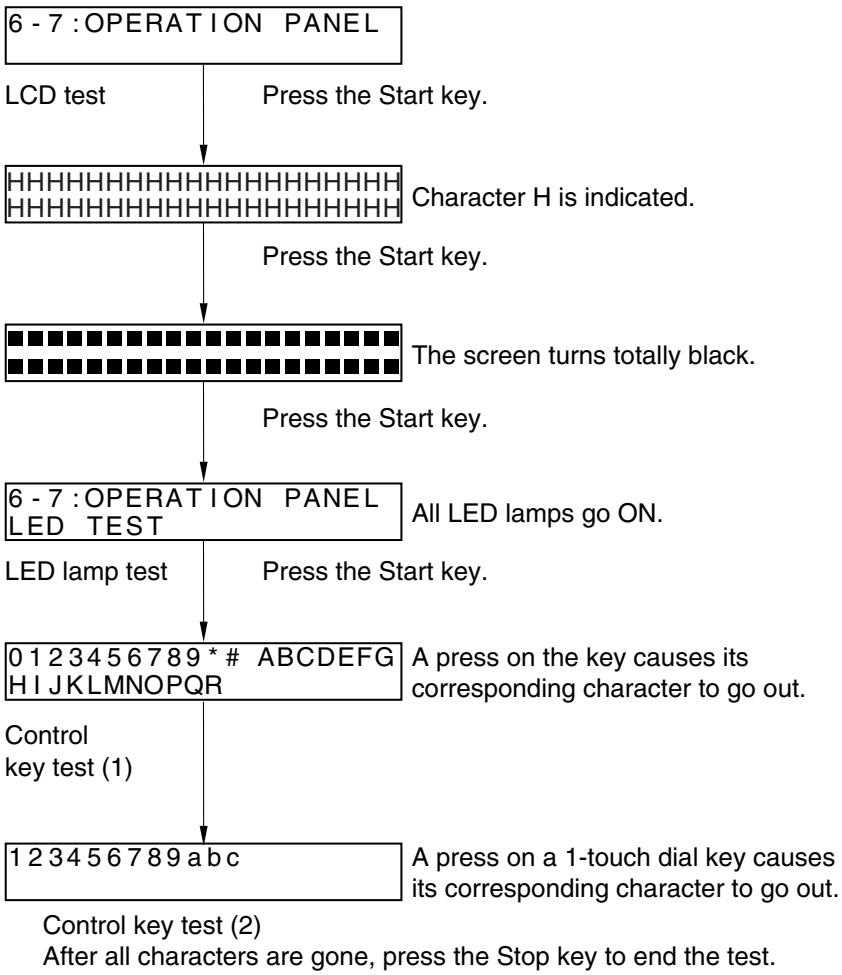
F-15-24

Key Correspondence for Control Key Test 2 (if equipped with fax functions)



F-15-25

The following is the flow of work for the control panel test:


6-7:OPERATION PANEL
LCD test
Press the Start key.
HHHHHHHHHHHHHHHHHHHH
HHHHHHHHHHHHHHHHHHHH
Character H is indicated.
Press the Start key.
The screen turns totally black.
Press the Start key.
6-7:OPERATION PANEL
LED TEST
All LED lamps go ON.
LED lamp test
Press the Start key.
0123456789*# ABCDEFG
HIJKLMNOPQR
A press on the key causes its corresponding character to go out.
Control
key test (1)
123456789abc
A press on a 1-touch dial key causes its corresponding character to go out.
Control key test (2)
After all characters are gone, press the Stop key to end the test.

F-15-26

Line Connection Reception Test (6-9: LINE DETECT)

A press on '9' on the keypad from the FACULTY TEST menu selects the LINE DETECT test. On Test Menu 1, you can check C1, FC, state of hooking of the eternal telephone, and the detection of signals by the NCU package.

Test Menu 1

A press on '1' on the keypad from the LINE DETECT menu selects test menu 1. In this test, the LCD indication changes from 'OFF' to 'ON' when C1, FC, or off-set of the external telephone is detected in relation to the telephone line.

Test Menu 3

A press on '3' on the keypad from the LINE DETECT menu selects test menu 3. In this test, the LCD indication changes from 'OFF' to 'ON' when CNG is detected in relation to the telephone terminal.

ESS Test (6-#: ESS TEST)

A press on the # key from the FACULTY TEST menu executes the ESS (Energy Save Stanby: hereafter, ESS) test. In the course of execution, the test causes the machine to be in ESS mode, causing all LEDs except the Energy Saver

key in the control panel to go OFF.
The machine ends ESS mode for the following:
- The Energy Saver key is pressed.
- Print data arrives from the PC.
- A fax arrives.*1
- Off-hook set is detected.*1
- The report output time arrives.*1
- The timer call time arrives.*1

*1: If equipped with fax functions.

BOOK Read Test (8: BOOK TEST)

A press on '8' on the keypad from the TEST MODE menu selects the BOOK test. A press on '4' or '6' on the keypad during this test initializes the corresponding parameter as described below:

'4' on the Keypad

The book read position parameter (#6 SCANNER 7: CCD 21, 23) is initialized.

'6' on the Keypad

The BOOK read parameter (#6 SCANNER 7: CCD 18*1, 19, 21, 23) is initialized.

*1: The term "CCD18 setting" refers to the setting for original read position adjustment executed by a press on '3' of the keypad under 'CCD TEST' of 'TEST MODE'.

15.2.19 Service Report

0006-3306

Manually Generating Reports

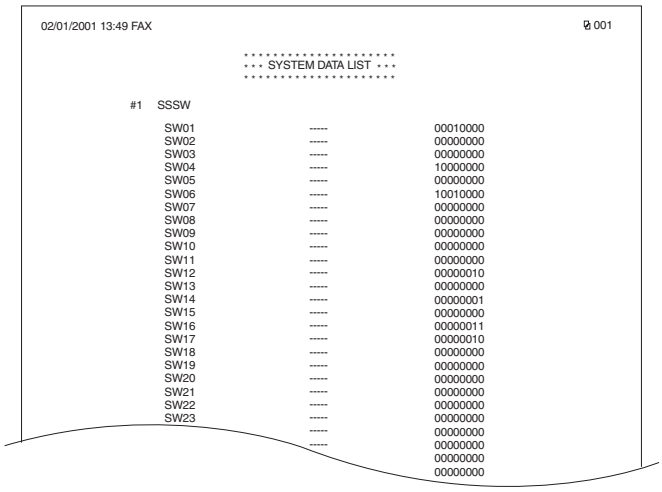
The following reports may be generated manually in service mode:

T-15-58

Type of report	Operation
SYSTEM (SERVICE) DATA LIST	Select an item under [#10REPORT] from the service mode menu, and press the OK key. Or, press Function key and Report key in this order in service mode. Then select the list to output, and press OK key.
SYSTEM DUMP LIST	
KEY HISTORY REPORT	
COUNTER REPORT	
PRINT SPEC REPORT	

SYSTEM (SERVICE) DATA LIST

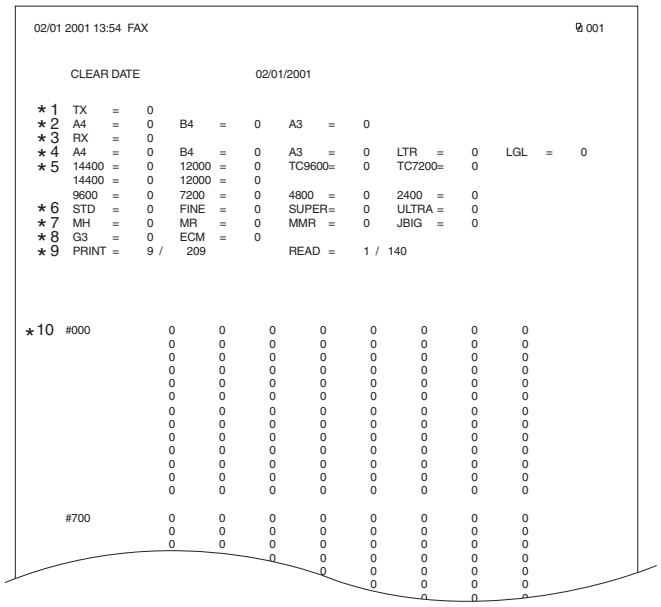
The following shows the service soft switch settings and the service parameter settings:



F-15-27

SYSTEM DUMP LIST

The following shows a record of communications and error communications:



F-15-28

*1: TX; total number of transmitted pages.

*2: Number of transmitted pages by original size.

*3: RX; total number of received pages.

*4: Number of received pages by original size.

*5: Number of transmitted/received pages by modem speed.

*6: Number of transmitted/received pages by mode (Standard, Fine, Super Fine, Ultra Fine).

*7: Number of transmitted/received pages by coding method.

*8: Number of transmissions/receptions by mode.

*9: Number of prints, total number of prints; number of pages read, total number of pages read.

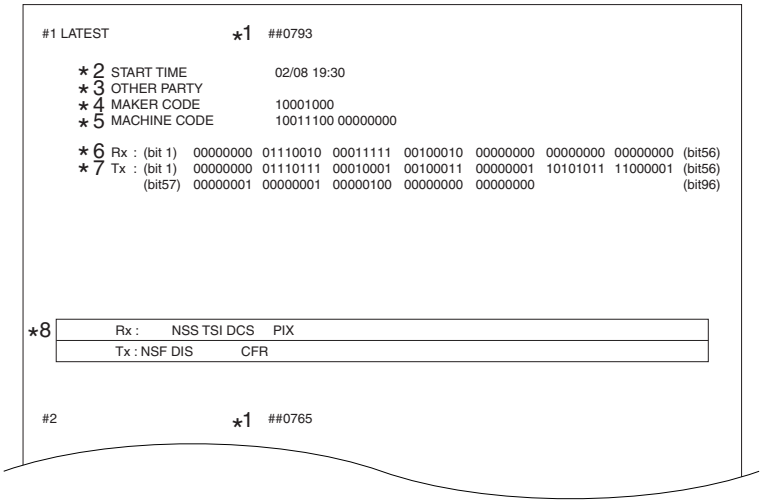
*10: Number of occurrences of specific error codes.

T-15-59

Guide to Indication

##000	**1**	**7**	**3**	**0**	**0**
	Number of ##000 errors	Number of ##001 errors	Number of ##002 errors		

The report indicates the most recent 3 communication errors:



F-15-29

*1: Service error code.

*2: START TIME: date and time (in 24-hr notation).

*3: OTHER PARTY; telephone number sent by other party.

*4: MAKER CODE; manufacturer code.

*5: MACHINE CODE: code by model.

*6: Bit 1 through 48 of DIS, DCS, or DTC received.

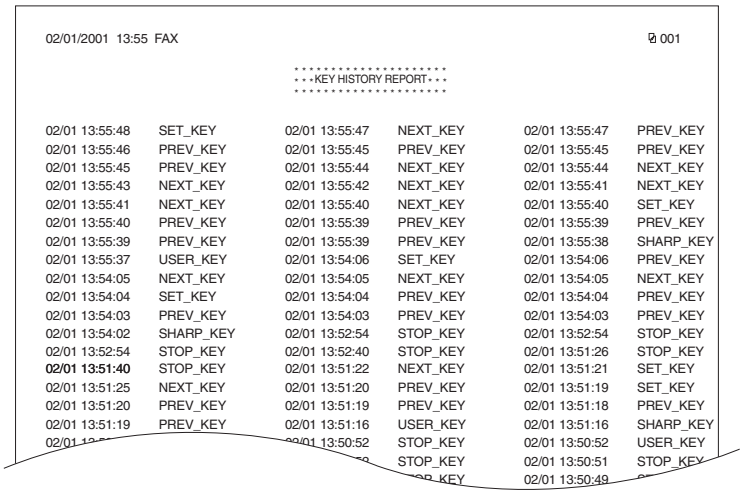
*7: Bit 1 through 48 of DIS, DCS, or DTC transmitted.

*8: RX: received procedure signal.

TX: transmitted procedure signal.

KEY HISTORY REPORT

The report indicates the most recent 1800 key presses:



02/01/2001 13:55 FAX 001

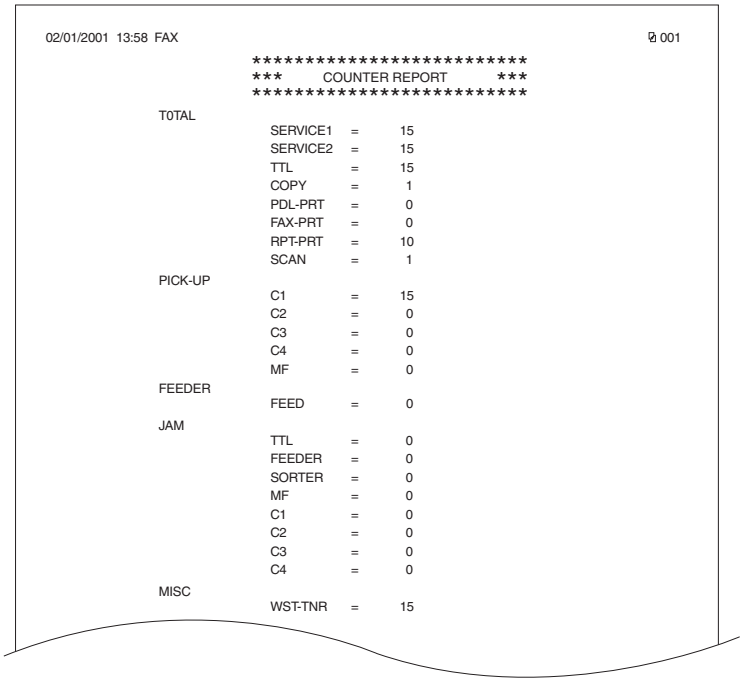
KEY HISTORY REPORT

02/01 13:55:48	SET_KEY	02/01 13:55:47	NEXT_KEY	02/01 13:55:47	PREV_KEY
02/01 13:55:46	PREV_KEY	02/01 13:55:45	PREV_KEY	02/01 13:55:45	PREV_KEY
02/01 13:55:45	PREV_KEY	02/01 13:55:44	NEXT_KEY	02/01 13:55:44	NEXT_KEY
02/01 13:55:43	NEXT_KEY	02/01 13:55:42	NEXT_KEY	02/01 13:55:41	NEXT_KEY
02/01 13:55:41	NEXT_KEY	02/01 13:55:40	NEXT_KEY	02/01 13:55:40	SET_KEY
02/01 13:55:40	PREV_KEY	02/01 13:55:39	PREV_KEY	02/01 13:55:39	PREV_KEY
02/01 13:55:39	PREV_KEY	02/01 13:55:39	PREV_KEY	02/01 13:55:38	SHARP_KEY
02/01 13:55:37	USER_KEY	02/01 13:54:06	SET_KEY	02/01 13:54:06	PREV_KEY
02/01 13:54:05	NEXT_KEY	02/01 13:54:05	NEXT_KEY	02/01 13:54:05	NEXT_KEY
02/01 13:54:04	SET_KEY	02/01 13:54:04	PREV_KEY	02/01 13:54:04	PREV_KEY
02/01 13:54:03	PREV_KEY	02/01 13:54:03	PREV_KEY	02/01 13:54:03	PREV_KEY
02/01 13:54:02	SHARP_KEY	02/01 13:52:54	STOP_KEY	02/01 13:52:54	STOP_KEY
02/01 13:52:54	STOP_KEY	02/01 13:52:40	STOP_KEY	02/01 13:51:26	STOP_KEY
02/01 13:51:40	STOP_KEY	02/01 13:51:22	NEXT_KEY	02/01 13:51:21	SET_KEY
02/01 13:51:25	NEXT_KEY	02/01 13:51:20	PREV_KEY	02/01 13:51:19	SET_KEY
02/01 13:51:20	PREV_KEY	02/01 13:51:19	PREV_KEY	02/01 13:51:18	PREV_KEY
02/01 13:51:19	PREV_KEY	02/01 13:51:16	USER_KEY	02/01 13:51:16	SHARP_KEY
		02/01 13:50:52	STOP_KEY	02/01 13:50:52	USER_KEY
			STOP_KEY	02/01 13:50:51	STOP_KEY
			KEY	02/01 13:50:49	

F-15-30

COUNTER REPORT

The various counter readings are indicated (3.14.1 of Chapter 2):



02/01/2001 13:58 FAX 001

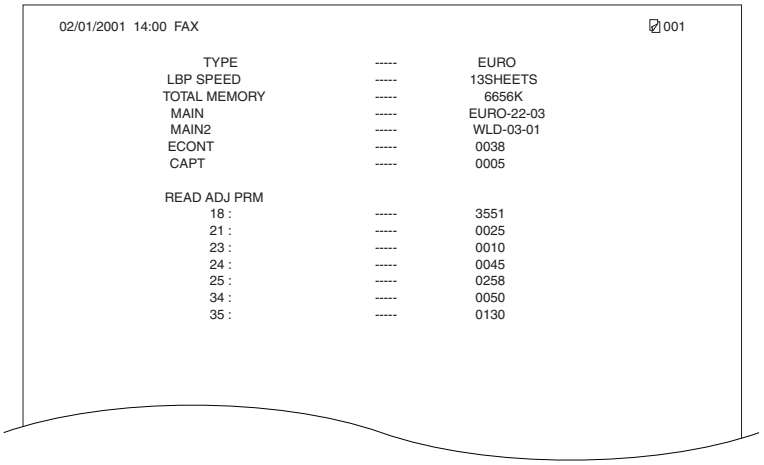
COUNTER REPORT

T0TAL			
	SERVICE1	=	15
	SERVICE2	=	15
	TTL	=	15
	COPY	=	1
	PDL-PRT	=	0
	FAX-PRT	=	0
	RPT-PRT	=	10
	SCAN	=	1
PICK-UP			
	C1	=	15
	C2	=	0
	C3	=	0
	C4	=	0
	MF	=	0
FEEDER			
	FEED	=	0
JAM			
	TTL	=	0
	FEEDER	=	0
	SORTER	=	0
	MF	=	0
	C1	=	0
	C2	=	0
	C3	=	0
	C4	=	0
MISC			
	WST-TNR	=	15

F-15-31

PRINT SPEC REPORT

The report indicates the TYPE settings, printing speed, memory size, ROM version, and adjustment data.



F-15-32

Automatically Generated Reports

The following reports are generated automatically:

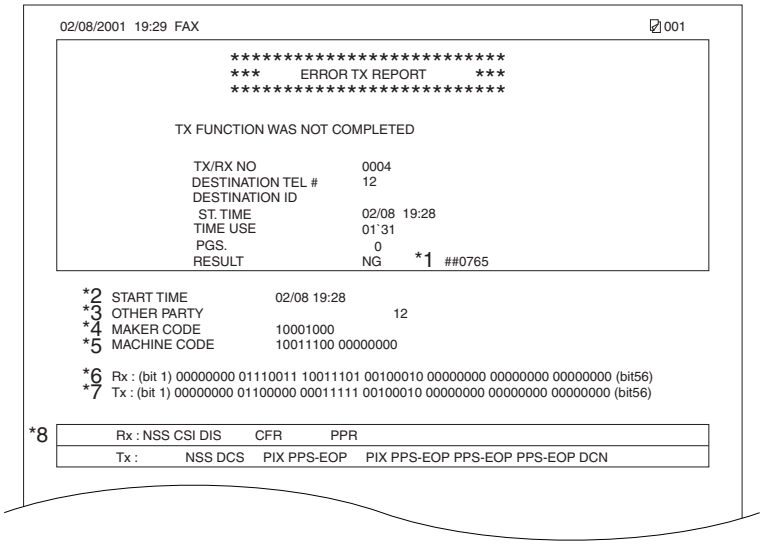
T-15-60

Type of report	Operation
Error TX report (w/ error code list, dump list)	Enable automatic generation on the report settings menu in user mode menu (i.e., use bits 0 and 1 of SW01 of service data #1 SSSW).
RX report (w/ error code list, dump list)	Enable automatic generation on the report settings menu in user mode menu (i.e., use bits 0 and 1 of SW01 of service data #1 SSSW).

Error TX Report (for service)

A service error code list and an error dump list may be attached to the error TX report. To do so, use service SSSW-SW01 in service mode.

If 'attach' is selected for 'transmission image' under 'transmission result report' of [REPORT SETTING] in user mode, a part of the 1st page of the transmission image will be attached when memory transmission is used.


02/08/2001 19:29 FAX
001
****
*** ERROR TX REPORT ***
****
TX FUNCTION WAS NOT COMPLETED
TX/RX NO 0004
DESTINATION TEL # 12
DESTINATION ID
ST. TIME 02/08 19:28
TIME USE 01'31
PGS. 0
RESULT NG *1 ##0765
*2 START TIME 02/08 19:28
*3 OTHER PARTY 12
*4 MAKER CODE 10001000
*5 MACHINE CODE 10011100 00000000
*6 Rx : (bit 1) 00000000 01110011 10011101 00100010 00000000 00000000 00000000 (bit56)
*7 Tx : (bit 1) 00000000 01100000 00011111 00100010 00000000 00000000 00000000 (bit56)
*8
Rx : NSS CSI DIS CFR PPR
Tx : NSS DCS PIX PPS-EOP PIX PPS-EOP PPS-EOP PPS-EOP DCN

F-15-33

*1: Service error code.

*2: START TIME; date and time (in 24-hr notation).

*3: OTHER PARTY; telephone number sent from other party.

*4: MAKER CODE; manufacture code.

*5: MACHINE CODE; model code.

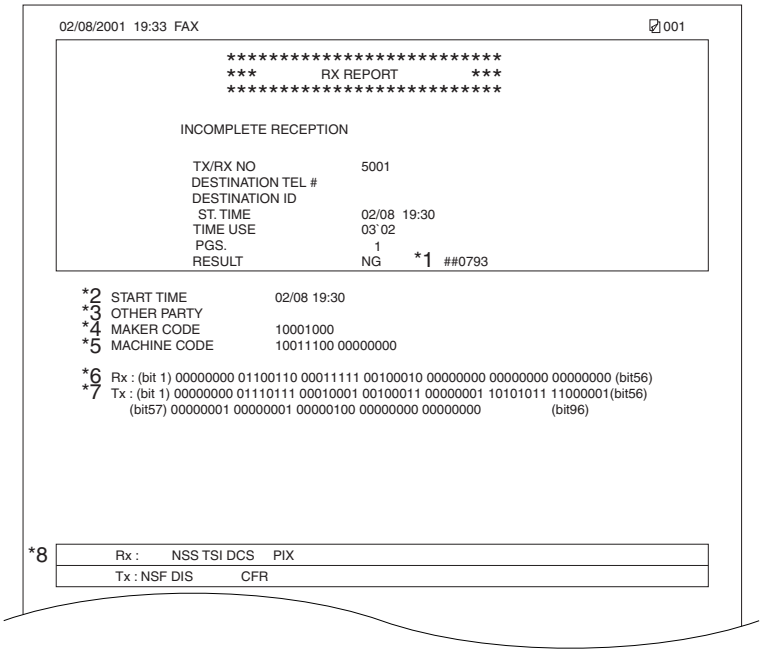
*6: Bits 1 through 48 of received DIS, DCS, or DTC.

*7: Bits 1 through 48 of received DIS, DCS, or DTC.

*8: RX: received procedure signal.

TX: transmitted procedure signal.

A service error code list and an error dump list may be attached to the RX report in response to an error reception. To attach, use SSSW-SW01 in service mode.



F-15-34

*1: Service error code.

*2: START TIME; date and time (in 24-hr notation).

*3: OTHER PARTY; telephone number sent from other party.

*4: MAKER CODE; manufacture code.

*5: MACHINE CODE; model code.

*6: Bits 1 through 48 of received DIS, DCS, or DTC.

*7: Bits 1 through 48 of received DIS, DCS, or DTC.

*8: RX: received procedure signal.
TX: transmitted procedure signal.

Chapter 16 Service Tools

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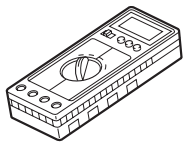
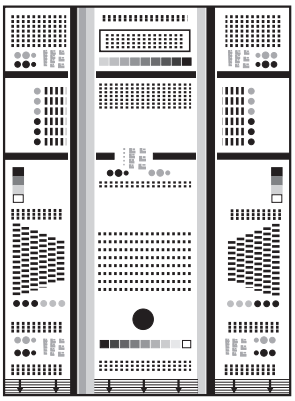
16.1 List of Special Tools

0006-3476

The following tools are required in addition to the standard set of tools when servicing the machine:

T-16-1

No.	Tool name	Tool No.	Shape	Rank*	Remarks
1	Digital multimeter	FY9-2002		A	For making electrical checks.
2	NA-3 Test Sheet	FY9-9196		A	For adjusting/ checking images.

*Rank:

A: Every service person is expected to carry one.

16.2 List of Solvents and Oils

0006-4310

T-16-2

No.	Name	Use	Composition	Remarks
1	Alcohol	Cleaning: e.g., glass, plastic, rubber; external covers.	Fluoride-family hydrocarbon, alcohol, surface activating agent, water.	- Do not bring near fire. - Procure locally. - IPA (isopropyl alcohol) may be substituted.
2	Lube, MOLYKOTE EM-50L, Grease	Lubricating; e.g. contact sensor drive rail, drive assembly, hinge of the manual feed tray, ADF delivery roller and pick up shaft of the ADF.	Polyalphaolefinoil, lithium soap, polybutene	- Tool No. HY9-0007
3	Electricity grease (IF-20)	Lubricating; e.g. connection of the vertical path roller and the gear, connection of the delivnection of the delivery roller and bushing.	-	- Tool No. CK-8006

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Canon